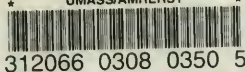


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THE
AMERICAN FARMER,

CONTAINING

ORIGINAL ESSAYS AND SELECTIONS

ON

Rural Economy
AND INTERNAL IMPROVEMENTS,

WITH

Illustrative Engravings

AND THE

PRICES CURRENT OF COUNTRY PRODUCE.

JOHN S. SKINNER, EDITOR.

*"O fortunatos nimium sua si bona norint,
"Agricolos.".....VIRG.*

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Baltimore, August 7, 1822.

SIR,

I take the liberty to send you a copy of the Index to the 3d volume of the "**AMERICAN FARMER**," that you may be enabled to form some idea of the scope and value of that work. With the same view, I likewise submit several testimonials of its merits, which are selected from many that have been bestowed upon the publication, by associations of eminent Agriculturists, in different sections of this Union.

And by these, I beg leave to justify the present most respectful solicitation of your pecuniary and intellectual patronage of an undertaking, which may now be considered *an established National Repository of Agricultural Science and Practice*.

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JOHN S. SKINNER.

From the Massachusetts Agricultural Repository, volume 7, January, 1822.

"We, the Trustees of the Massachusetts Agricultural Society, cordially recommend to the notice of intelligent cultivators the American Farmer, edited by John S. Skinner, at Baltimore. It is conducted with great industry, skill, judgment, and impartiality; and, from the central situation of the editor, possesses great advantages, as to information, which few or no other periodical works could enjoy.

"If we have hitherto abstained from what we consider a notice justly due to this work, it has arisen from a principle which we have always prescribed to ourselves, to wait till experience should convince us that a publication was truly worthy of the patronage of our subscribers and members, before we should venture to recommend it."

Extract from the proceedings of the Maryland Agricultural Society, at their meeting, held at Baltimore the 8th June, 1821.

On motion of Hon. Edward Lloyd,

Resolved unanimously by the Society, That in their opinion, the "**AMERICAN FARMER**," edited by John S. Skinner, is a publication justly entitled to the patronage and support of every farmer and planter, and that its Editor deserves our approbation, for his judicious and zealous efforts to advance the interests of Agriculture.

J. E. HOWARD, Jr. Sec'y.

Extract from the proceedings of the Agricultural Society of Albemarle, Virginia, James Madison, President, at their meeting, May 8, 1820.

"In order more generally to disseminate the Agricultural intelligence and improvements made throughout the United States, the Society resolve to present each of its members with the first volume of the American Farmer, edited at Baltimore, by John S. Skinner.

"P. MINOR, Sec'y."

The following notice was addressed by the board of managers of the Agricultural Society of South Carolina, at their own expense, through the public papers of that state.

TO THE PLANTERS OF SOUTH CAROLINA.

The "**AMERICAN FARMER**," which is, as appears from its title, devoted principally to subjects relating to agriculture, contains a great variety of matter, the result of actual and well digested experiments, embracing the whole range of domestic and rural economy, such as cannot fail, if duly observed, to be highly beneficial to your interests. The great object of this society is, to promote agriculture, and thereby advance the prosperity not of themselves individually, but of their fellow citizens generally. They believe they cannot more effectually, in this early stage of their organization, promote their object, than by recommending this paper to your perusal. They therefore take the liberty to commend the "**AMERICAN FARMER**" as highly worthy your attention. By order of the Board of Managers.

J. J. CHAPPELL,
 Vice-President presiding.

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AGRICULTURE.

REMARKS

ON THE IMPROVEMENT OF CATTLE, &c.
in a Letter to Sir J. An Saunders Sebright, Bart. M. P.
by Mr. John Wilkinson, of Lenton, near Nottingham.

Let each succeeding race employ your care,
Distinguish which to slaughter, which to spare;
Mark well the lineage,—let the purest make,
From purest blood, its just proportions take.

(Continued from our last.)

With respect to the value of different breeds as milkers only, some persons have attended solely to the quantity of milk given by each cow, while others have had regard only to the quality. But it is certain that this value must depend on the quantity and quality jointly, yielded from a given quantity of food. By a given quantity of food is to be understood, not merely the same weight, but the same weight of the same kind and quality also; and in any experiment, it ought moreover to be given under similar circumstances. The time too allowed for an experiment of this nature ought to be at least a whole year; because some breeds will give a great quantity of milk just after calving, but will not yield that quantity for any considerable time; while others will not give so great a quantity at first, but will approximate to it much longer. As to the number of the cows, it need by no means be the same in two or more cases of trial; but the proper number for the consumption of the proposed quantity of food. For the question is not, whether the produce of so many of one breed, be more valuable than the produce of the same number of any other; but what will be the value of the produce afforded by a certain quantity of food, when bestowed on the one, compared with the value of the produce afforded by the same quantity of the same kind of food, when bestowed on any other remaining circumstances being as similar as possible.

In comparing the value of any one breed with the value of any other, reference to the shambles, it is very evident, that the placing out certain quantities of different kinds to feed, and comparing the increase of weight in each case with the quantity of food consumed, will never determine the question. Because, here the question is not which have paid the best for a certain period, but which have paid the best during the whole course of their lives; the different breeds being killed at that particular age which will give to them respectively the maximum of profit. That there is a certain age which is the most profitable for disposing of one kind; but another age, and far different, the most profitable for another, is a circumstance well known to every practical farmer. Some breeds cannot easily be made fat till they are three or four years old; while others are capable of being so at any age we may think proper. I believe the most profitable age for disposing of fat cattle of the improved short horned breed, is from two to three years old, according to circum-

* This I think is so obvious, that I need not attempt to explain the fact itself; but only mention after what manner experiments ought to be made. Hence too it very clearly follows, that the determining of what quantity of cream is produced from a given quantity of milk, will never ascertain the relative value of different breeds as milkers. This rule indeed is defective on its own principle, as it will by no means ascertain even the quality; for the cream of some cows is far richer than that of others, and will yield a much greater proportion of butter.

stances at the time of sale. In all experiments of this nature, there are many and great difficulties to encounter, in order to render the comparisons just; we may, however, proceed with a sufficient degree of accuracy to determine what breeds are unquestionably the best; and the greater excellence has always been yielded to those which arrive at the earliest maturity.

I now come to the descent or lineage of animals; and so vast is the importance of this part of my subject, that I thought I could not do better than notice it in the title-page itself. And for the same reason also, I may be allowed to quote your own words, which are so apposite to my present purpose, and so perspicuous in the delineation of the truth you wish to inculcate; a truth which can never be too fully impressed on the minds of those who are engaged in the improvement of stock. They are as follows:—

"Regard should not only be paid to the qualities apparent in animals selected for breeding, but to those which have prevailed in the race from which they are descended, as they will always show themselves, sooner or later, in the progeny: it is for this reason that we should not breed from an animal, however excellent, unless we can ascertain it to be what is called *in-bred*; that is, descended from a race of ancestors, who have through several generations, possessed, in a high degree, the properties which it is our object to obtain." This observation of yours sir, appears to me so comprehensive, so clear, and yet at the same time so concise, that I dare not attempt either to add to or take from it; I will only endeavour to illustrate it by some familiar example, and as many are more conversant with the colour of animals than the excellence of their shapes, it may not be amiss to refer to the former. Suppose then a number of pure Devon cows to be crossed with a breed of perfectly white Bulls; in this case it is probable that some of the calves would be perfectly red, others white, and the greater part would partake of these colours jointly. If we were now to take the red heifers produced by this cross, and put them to a Devon bull, it would not be a matter of any great surprise, if some of their progeny, though sprung from red parents, should be perfectly white, and still less, that several should be mixed with this colour; though it would not by any means be so probable as in the former instance. And were we thus to proceed through several generations, this white colour would be less and less apparent in the breed, but would most probably occasionally shew itself in some individual or other. If on the other hand, we were to breed from pure Devons only, that is from those that have been carefully bred for a great length of time, we should reasonably expect their offspring to be of the same colour with the parents themselves; while any deviation from this, would be looked upon as one of those changes, which nature sometimes produces out of the common course of things. And what has here been asserted of colour, is equally applicable to peculiarity of form, or quality of flesh.

When a breed is once brought to that degree of perfection it is capable of, the same care must be used in the continuance, as was shown in the formation itself; or as you have justly observed, "what has been produced by art, must be continued by the same means." For, though animals that are themselves good, and have also been descended from a long race of valuable progenitors, are by no means likely to produce even in a single instance, a bad offspring; yet I think it will no more be contended, that every animal produced by the same parent, is precisely of the same value, than that the red colour in the Devon cattle is precisely in the same shade of each individual, or that the horns of the Lancashire are exactly

of the same length. It has already been observed indeed, that there is a strong tendency for like to produce like, that there is a slight tendency to change, and that nature, moreover, sometimes deviates from our common course. If however, such a deviation takes place, it may be continued; as experience teaches both in the animal and vegetable kingdom. And hence will very clearly follow, the impropriety of keeping a bad animal, on pretence that it is well descended; an error which some breeders have fallen into, if not in judgment, at least in practice. Hence also it will appear, that this defective kind of animal of which I have been just speaking, is generally produced from some mixture of impure blood, or that the breed has been declining through several generations; in either of which cases it can never be said to be well descended. For in order that an animal may be well bred, it is not sufficient that we are able to trace it to parents, the most perfect of their kind; but every intermediate gradation ought also to be good. It will appear too, from what has been advanced on the formation, the descent, and continuance of improved stock, that no animal can be depended upon for breeding, but what is in itself good, and is moreover well bred in the strictest sense of the words.

It may not be improper to observe, both with respect to the improvement and the decline of breeds, that they are in general gradual, and proceed but slowly through several generations. And hence, it is not at all inconsistent to say, that "animals have at length been produced very unlike their original stock;" and yet, at the same time, that there is in nature a strong tendency for "like to produce like." But this remark, respecting the slowness of change refers to distinct breeds, and also where any particular family is not crossed with others that are much better or much worse of the same kind; nor does it include adventitious circumstances, as pasturage, climate, &c. And it is on account of this slowness of procedure, that so many, who have originally engaged in the improvement of stock have been obliged to expend a considerable sum of money before they could obtain any material advantage; while those who have purchased of that stock when improved, have reaped an immediate and even a large profit.

With respect to crossing distinct breeds; it may be proper to divide the subject into one or two separate heads. And first, as to what may reasonably be expected from such a union. Here you remark sir, that "you do not, by any means, approve of mixing two distinct breeds, with the view of uniting the valuable properties of both." And from what follows, I conclude the import of these words to be, with the view of uniting these properties in the full perfection, in which they existed separately in each. We have occasionally been amused with such pretensions, yet he who is a careful observer of facts, will scarcely I think, be inclined to credit them. I have seen much of the nature of crossing, for reasons that I shall afterwards mention, but never yet saw the accomplishment of an object so desirable, as the full attainment of the good properties in each, without any mixture of the bad. Indeed it must be obvious to every man of sense, that there is no more reason to expect a perfect union of the former, rather than of the latter. The one are just as likely to be inherited as the other and for the very same reason. The thing generally to be expected from mixing the breeds of animals, possessing properties differing in degree, is such an union of those properties in the progeny, that they may be greater than in the ancestry on the one side, but less than in that of the other; though it is also true, as you have observed, and as I have before hinted, that the offspring will sometimes nearly resemble

on parent only. In crossing the cart mare with a blood-horse, no man expects to obtain from the produce, the strength of the former with the speed of the latter; but an animal, that is swifter than the cart horse, yet incapable of drawing so great a burthen. It does not follow, however, that no cross can be useful; it may be very much so. For instance, there are many situations, which will readily suggest themselves to the mind, where an animal with less speed, or less strength, than such a one as might reasonably be expected from the cross in the foregoing example, would by no means be so useful; and yet, where more of either speed or strength, would be almost, if not altogether unnecessary. Again, it occasionally happens, that a breed of cattle which is possessed of the greatest excellence, may be too large for the pasturage of a particular situation; and yet a cross from these might obtain a very considerable advantage. Or a breed, which is unprofitable on the whole, is sometimes kept for the sake of a particular quality, which it possesses in so high a degree, that it would scarcely be the worse, if this quality were somewhat diminished. And this I think is the case with the Alderney cow; a breed which is kept by some of the nobility and gentry, entirely on account of the richness of the cream; but yet, the quantity of milk afforded by them is so small, as to make them extremely unprofitable, even as milkers. I have frequently known this breed to be crossed however by a well-bred short horned bull, the produce are generally much better milkers than the Alderneys; are more beautiful in their appearance, as not being so rawboned; and frequently come to a very considerable weight. It will be inferred from what has been already said, and it is an inference which I have seen supported by numerous examples; that where one breed is inferior to another in each individual point the worse will generally be improved by the better, not partially, but altogether. But where distinct breeds possess their several advantages in different ways, to expect a full and complete union of the good qualities of each, without any mixture of the bad, is to expect a result, contrary to the whole analogy of nature.

I shall enquire secondly, whether a cross from two distinct breeds can be obtained and continued, so as to unite in almost an equal proportion the properties of both; and I am fully of an opinion that this can be accomplished. The former part of the question has, I think, been already answered; and I have seen the latter effected between the long and short horned cattle. In this neighbourhood there were many dairies of long horned cows, descended from the stock of the late Mr. Bakewell; and it was not at all surprising, that the possessors of such stock should be much prejudiced in their favour, on account of the eminence of so great a breeder. When however the improved short horned cattle began to make such rapid strides as had about thirty years ago; many were willing to try a cross from them, but were not willing to proceed further for the present. This cross being extremely approved of, they rejected such as inclined too much after the one or the other; and continuing to breed from those that partook of the mean, a breed, usually called half horned ones, was at length established; as well known by their particular characteristics, as either of the former.

There is another mode of crossing, which has frequently been attended with the greatest advantage for the improvement of inferior breeds; which is, by crossing the females of the worse with the males of the better, and their produce again in the same manner, through several succeeding generations. By this method, the blood of the former will be more and more exhausted, and a breed at length obtained nearly resembling the latter; according to the example you

† It has before been remarked on the subject of crossing, that though the produce may be expected generally to partake of nearly an equal proportion of the properties of both; yet it not unfrequently happens, that some individuals take very much after one parent, and some the other. And hence it will follow that the approximation above mentioned, may be accelerated or retarded by a judicious or improper selection in each succeeding cross.

have given of Mennio—Ryeland Sheep. Since however, the blood of the former, though less and less in each succeeding generation, can never entirely be taken away; it will follow that the value of the produce at any particular time, must depend partly on the value of the females from whence the cross originally descended. I mentioned under the last head, a cross introduced by many in this neighbourhood, between the Long and Short Horned Cattle, partaking in nearly an equal proportion of the properties of both. But afterwards, when the improved Short Horns had gained so complete an ascendancy over the long, and prejudice in favour of the latter, was borne down by experience; this cross, as well as the remaining Long Horned Cows, were put to bulls of the former description, and their produce again, through many generations; the result of which agrees with my present position; namely that the future crosses, at length, so nearly resembled the Short Horned Cattle, as scarcely to be distinguished from them. The same thing has been effected by crossing Scott's in like manner; and I doubt not, might be from any breeds whatever.

It may be observed generally, and lastly, that no arguments against the system of crossing can be drawn from the nature of the case; because it is highly probable that the various breeds of Cattle, descended originally from one common stock; and it is absolutely certain, that the original breeds if more than one, could not have been numerous. This, therefore, must necessarily exclude all objections, drawn prior to experience; and experience itself has frequently proved it to be highly beneficial. I have already mentioned a valuable cross, where richness of cream is preferred, between the Alderney Cow and improved Short Horned Bull. I have seen moreover both Devons, Herefords, Lancashire, and Scots, all crossed with these Bulls and all producing very valuable Stock. In Lancashire also, they are beginning to use them very much. Since indeed the improved short horned cattle have been in such great request, as they have of late, there is scarcely any breed in the kingdom, where individuals have not been crossed with them; or any county into which some of them have not been sent.

But it is proper to remark, that the object of every cross, as well as of every distinct breed, ought to be the attainment of an animal, adapted to that particular situation, for which it is designed; for what may be the most advantageous in one situation, may be unprofitable in another. And unless this observation be attended to, we can never reasonably look forward to success. For instance, though I consider the improved Short Horned Cattle as by far the best for the country at large, yet there are situations where I should by no means recommend them. I do not think that the mountains of Scotland could be better stocked, than with that hardy nimble little race, which at present possesses them; while some of their more fertile situations, might very well bear a cross from the breed just mentioned; and some, the breed itself. On the other hand, scarcely any greater blessing could befall the land, than the introduction of the breed to a considerable extent. For land which is capable of bringing to any tolerable state of condition, a race of such hard, bad fleshed ones, as are generally found in that Country, would be capable of bringing a better kind to the greatest state of perfection.

Nothing can be more contradictory than what has frequently been advanced by various persons on the whole system of crossing; the understatement of some, seems only to have called forth the overstatement of others; and interest or prejudice have rarely been forgotten. It would have been well, Sir, had some of these gentlemen attended to you on the subject; they would have been directed to an example where the result was likely to be beneficial, and their own reflections might have suggested many more. They would have seen also the idea of the union of the good properties, existing separately in distinct breeds without any mixture of the bad, discarded on the ground both of reason and experience. In a

‡ That crosses are unnatural, seems to be a phrase used by some, without understanding its meaning; and taken up by others without consideration.

word, they might have perceived, what they ought reasonably to expect, and what they ought not.

The reason I have been thus diffuse in the present part of the inquiry, is, that prejudice may not prevent a partial improvement, where a full and perfect one cannot immediately be effected; and to save others an expense, which some have unnecessarily incurred. Several gentlemen who have been convinced of the great advantage of improved Short Horned Cattle, have no sooner been in possession of a bull and one or two heifers, than they have wished for more. On account of the demand however, it has frequently happened, that they have not been able to be supplied with a greater number for the present. To remedy this, they have bought up some of the best Short Horned Cows they could meet with in the market, many of which, as might have been expected have not answered the end proposed. My advice, therefore, to such gentlemen, is, rather to cross the Cows they already possess with the improved Short Horned Bull; and gradually to get rid of them, and their progeny, as the stock from their thorough-bred heifers continues to increase. By this means a pure breed would shortly be obtained; and, in the meantime the rest, greatly improved. It would afford, moreover, an opportunity of comparing the improved Short Horned Cattle with the stock that had previously been kept; and conviction arising from experience, is always to be preferred to bare assertion.

It can scarcely be expected, that I should enter particularly into the praises of the improved breed of Short Horned Cattle: as it would have too much the appearance of extolling a race of animals because in one own possession. I thought it would be better to confine myself to general rules, and to shew by what means the best of each kind may invariably be discovered. I have endeavoured moreover, to make the whole statement plain and simple; to divest it of every appendage which might serve either to disguise or conceal the truth; and to use that order which seemed best calculated to assist both the judgment and the memory. To this end therefore, I have treated, first of all, on the formation and improvement of distinct breeds; then, on the perfection of their shape and the quality of their flesh; afterwards, on the comparative value of all, considered both as milkers and breeders; and lastly, on the means to be used for the continuation of the most important properties, when such properties have been once established. But in doing this, I have adverted to several other particulars, which appeared to me to arise immediately from the subject, and to be in themselves of the greatest consequence. How far I have succeeded, Sir, in this part of my design, must be left to your superior judgment; and I can only say, should it meet your approbation, it will certainly afford me the greatest pleasure.

There is one observation I will make, which to many, may be of considerable use. In the course of my experience, when applied to F. Cattle; I have several times been requested to send the smallest in my possession: when in point of fact, the situation for which they were wanted, was capable of feeding the largest Ox that ever grazed, supposing the animal to be of a superior quality of flesh, and in other respects good. And such requests I have generally found to be owing to the badness of the Cattle in those particular districts, rather than to the inferior quality of the land itself. In such cases, therefore, it is clearly of importance, that the animal should be of a good size, as well as of a good quality; because when such Cattle are found to do well, that alone will serve to remove the unfounded opinion respecting the soil. But you, Sir, who have excelled in such a superior degree with your Sheep and also in other respects, well known how much depends on

§ I suppose, indeed, had some of the finest animals, selected from your flock, been described to those who had never seen them, they would scarcely have given credit to the fact; while those who had been eye-witnesses, if unacquainted with what judgment and perseverance could effect, might have considered the production of such beautiful creatures, rather as accidental, than as arising from extraordinary skill in the art of breeding.

the animal; and that the soil is frequently blamed when the fault lies wholly in the stock. This I have seen proved again and again.

Nothing can be more just, than your observation, "that the attention which gentlemen of landed property have of late years paid to the improvement of breeds of domestic animals, has been extremely beneficial to the country." Had no such improvements indeed taken place during the last fifty years, it would not have been possible to supply the market with that quantity of animal food, which the present population demands. Although in several districts these improvements are chiefly owing to the professional breeder; yet it is nevertheless certain, that there are many other situations, where they must first be introduced by the man of fortune. For the common farmer, either from a want of money, or the fear of a miscarriage, will rarely be induced to try an experiment, before he has had it in his power to witness the result. In such places therefore, where the improvements in stock are at present, either few or none; I think it would not be found a bad plan for those gentlemen who supply themselves with valuable animals, to allow their tenantry to improve from their own stock at a certain reasonable rate. By this means they would soon repay themselves the small expense they had been at; would possess a valuable breed, instead of an inferior one; and by increasing the property of their dependants, would afford to themselves an additional security for their rent. Nor would this be at all injurious to the breeder; for the more valuable stock is known, the more it is sought after. And its great importance can never be better ascertained, than by a reference to the late distressed state of Agriculture. The extent of Bankruptcy in those districts where such stock was to be found, was never any thing like equal to the extent, where it was not; other circumstances being the same in both cases. Whatever may be the real degree of success of each nobleman or gentleman in these undertakings; I think all may look forward to a fair remuneration; besides the satisfaction of conferring so great an advantage to their own immediate neighborhood, and being justly entitled to the thanks of the country at large.

I remain, Sir, your most obedient,

And very humble servant,
JOHN WILSON.

Lenton, near Nottingham. 1818.

(Appendix in our next.)

Cheap food for that necessary animal the Hog, or the full value of a well known esculent—but just discovered.

To the Editor of the Eastern Gazette.

March 1, 1821.

SIR.—The intelligent editor of the *American Farmer* has requested information of the best mode of preserving pumpkins, &c. I have always found it difficult to keep them longer than till Christmas in any quantity, and should an unlucky early frost catch them out, threefourths of the crop will rot on hand before the end of November, unless sooner eaten up. I have never made a tolerably abundant crop, but what they have plagued me; having been generally obliged, when they showed the first symptoms of decay to feed them, not as I would, but in profusion and waste, in order to save as it is called, all that we could; when they are gone, this profuse feeding cannot be kept up, and the stock inevitably fall off. But I can inform him of a superior food; one that comes earlier, and may be preserved longer with the most trilling care; and that does not require as rich ground, or as much manure.

Many farmers of the Eastern Shore of Maryland, and particularly of Caroline county,

have long known the value, and reaped the benefit (very partially, however,) of a good crop of that well known vegetable, the Cymblyn, or Squash. They have found them to be easily raised, not requiring more than two or three workings, and in tolerable ground, yielding a good crop—I have known upwards of six hundred measured bushels gathered from a measured acre of rich earth, in the course of seven weeks, between the last of July and the 20th of September. When a large crop is desired from a small plot, (it must of course be rich) prepare it nicely, and at the ploughing immediately preceding the planting, any time in May, lay the ground in ridges of 8 or 9 feet wide, and drill the seed down the centre of each bed, so as to be 8 or 9 feet apart between the rows, and to give single plants two feet apart in the drill. When they have leaves as large as a half dollar, with the thumb and finger nail pinch out carefully the little bud from the centre of each plant. This topping is easy, and may appear trifling; but it is very useful. It strengthens and enlarges the stem, and makes it throw off runners horizontal and vigorous. In these wide drills, they are more easily ploughed or harrowed, and with a little training you get among them more readily, and gather them with less injury to the vines.

From the middle of July, the gleanings of the harvest field affords a rich pasture for the stock of hogs for two or three weeks. For half a dozen years past, my Cymblyn patch has come upon the heel of my wheat stubble, and an acre and a half of rich ground has afforded plentiful feed for a hundred hogs and shoats from early in August till the middle of September, and made them grow handsomely during that time. They have been gathered and fed in the soft state, in which we use them as a table vegetable, averaging from half a pound to a pound in weight. About the last mentioned period, the vines commonly cease to bear in plenty, and the season of this food has been considered as ended. In feeding my hogs, I had frequently observed, when by chance a Cymblyn had got too hard for them to get into, if I would break it for them, it would be at once seized with avidity; a preference being given not only to the more advanced seed, but also to the more solid substance of the ripier vegetable. A warm moist week, towards the end of last September, revived the vines; they threw out new fruit, and ripened off a good set before there was a frost. During the month of October, I frequently observed some shoats, that were getting into every place, seize upon these Cymblyns, whenever one was accidentally broken, and devour it. The 6th of November I collected all the Cymblyns I could find for seed, and after cutting the best, took the refuse to my pen of hogs, that were in high feeding on corn, and as I broke them by a throw upon the earth, they eat them up greedily. The most of the Cymblyns reserved were cast in a heap in the garden. A few were taken out of the weather to enable me to see the difference, and to determine the best mode of keeping them. All in the exposed pile that got ripe, were still sound, and in good eating order at Christmas. Those on the top of the pile, from the more immediate

action of the frost and wet, had become discoloured, but were unhurt. Those protected from the weather, looked nearly as fresh as on the day when they were put away. On the 6th of November I weighed several—Weights from one and a half to four and three quarters of a pound. One month after, on the 6th December, I again weighed the same set—Those protected from the wet and frost for the last month lost only an average of a 14th of their weight—Those exposed lost very little more. The average weight of the Cymblyn, as fed in their young and soft state is about three quarters of a pound. The average weight of the ripe, is more than a pound, and a half, of much more nourishing food. On the 15th of January the protected cymblyns were still in as good order as the day they were gathered. Those exposed had begun to look weatherbeaten, but were still good, and were eaten greedily by the hogs—On the first of February those protected had changed colour a little, but had not lost one fifth of their weight, and were sound, excellent food—Those exposed had been thoroughly frozen and were hurt. On the last day of February I took a cymblyn from the under part of the exposed pile, and carried it to my hogs, that are in good order, and accustomed to a feed of corn morning and evening. The inside had become soft and pulpy, and I presume there was very little nourishment left except in the seed; the hogs however eat at once all but the hard, weather beaten shell.

The above statement of facts warrants the following conclusions. That the Cymblyn is an excellent food for hogs, easily attainable, and well worthy the attention of the farmer. That by far the most valuable part of the cymblyn season commences at the time, when it has been supposed the whole season was ended—That they are excellent hog feed from the first of August till the last of January—That from the first of October they are much more nourishing than before; and that the ripe cymblyn is as superior to the green, as hog food, as a ripe peach is to a green one for our own eating—That it would be best to collect the ripe crop towards the end of October, separate the perfect from the imperfect, and put them under shelter; a common fodder house with a little straw or corn husks under and over them would be all sufficient, and use the imperfect first—That they may be made in abundance, collected and preserved with less labour, care and trouble, than almost any other crop of any value—That in fattening a set of hogs, a plenty of ripe cymblyns would be equal to a plentiful crop of acorns; and to those, who have not this resource of forest food, that full feeding of ripe cymblyns from the first of October till within three weeks of killing would save in the common mode of pen feeding, at least 25 bushels of corn for every thousand weight of pork made fat; and that from the first of August to the last of January they will keep breeders and young hogs in thriving condition, without a grain of corn or any thing else, but attention and common pasture room.

In 1820, from the 20th of January till the 10th of April, by way of experiment, I kept shoats, 6 months old at the first period, not

only alive but growing on 2 quarts of cut ruta бага per head per day. They were in a close sty and cowl get, and did get nothing else, save water. And these same shoats made good hogs, averaging from 160 to 170 weight at the killing in the December following—A quart of corn per day during the winter will keep shoats of the same age not only growing, but in fine condition—The above quantity of turnips and one fourth of the above quantity of corn would, I believe, effect the same object. Cymbilins may be raised in abundance, and will, I have no doubt keep young hogs growing and thriving till the latter end of January, and then the best season for feeding the ruta бага commences. The substance within the rind of the ripe cymbilin appears to be equal to the substance of the ruta бага, and the ripe oily seed will supply the place of corn—They are fed too with very little trouble, requiring no washing—no cutting—nothing but a little crack with the but of a hand maul after they are poured down at the feeding place. A good kind will have meat from a half to five eighths of an inch thick, and the roundish sort without necks are most convenient, as one stroke will break them sufficiently; the long necked often requiring two or more. If cymbilins be suffered to ripen they check the flourishing growth of the vine. The vines should be kept closely gathered till about the end of the first week in September—after which, unless they have been very much injured by trampling, they will ripen off a larger crop, than if they had not been gathered at all.

The same ground that will raise twenty bushels of corn per acre would ripen off a greater measure of cymbilins, after having yielded soft food for a month—and if every other hill of corn was planted with cymbilins as I was dressed with the hoe the first of June, the two last workings of the corn would sufficiently cultivate the cymbilins: the corn would be laid by before the cymbilins had run in the way of the plough, and an abundant crop of hog food for six months, would be provided at very little more cost, than the trouble of collecting it.—Nor do I see any reason, why they are not as fine cow food, as pumpkins or ruta бага—The hog has become famous as a taster, and from repeated trials by myself and others the fact has been over and over ascertained, that he uniformly prefers the cymbilin to the pumpkin; and among other advantages of the former over the latter, it is not the least, that this food is less liable to waste, than perhaps any other. Mischievous cattle, sheep or hogs may get to your cymbilin heap; but locked up in them to their impenetrable case, they are safe. The trespass of stock is immediate destruction to nice pumpkins, and unless under very safe keeping they are, too, ever moving off, and suffering transformation into mush, pies, or fritters; cymbilins, like the acorn, though among the best food for hogs, are not subject to pilage.

A MARYLAND FARMER.

To take Andrew out of Linen.

Take soap and rub it well; then scrape some fine chalk, and rub that also in the linen; lay it on the grass; as it dries, wet it a little, and it will come out at twice doing.

PISÉ.

Or the Art of Building strong and durable Walls, to the Height of several Stories, with nothing but Earth, or the most common Materials. Drawn up and presented to the Board of Agriculture, by Henry Holland, Esq.

INTRODUCTION.

In the year 1791 a work was published at Paris by M. Francois Cointeraux, containing an account of a method of building strong and durable houses, with no other materials than earth; which has been practised for ages in the province of Lyons, though little known in the rest of France, or in any other part of Europe. It appeared to be attended with so many advantages, that many gentlemen in this country, who employ their leisure in the study of rural economy, were induced to make a trial of its efficacy; and the event of their experiments has been of a nature to make them wish, by all possible means, to extend the knowledge and practice of so beneficial an art. With a view to promote this desirable end, the account contained in the following pages has been extracted from the French work, and it will be found to contain every necessary instruction, by those in whose hands the original may not have fallen, or who being unacquainted with the language, may have been prevented from consulting it. The appearance of those wretched hovels which are built with mud in some parts of England, will perhaps dispose many persons, to doubt the strength and durability of houses, which are composed of no other materials than earth. The French author says, "The possibility of raising the walls of houses two or even three stories high, with earth only, which will sustain floors loaded with the heaviest weights, and of building the largest manufactories in this manner, may astonish every one, who has not been an eye witness of such things." But it is hoped that a description of this manner of building will sufficiently explain the reason of its superiority.

The word *pisé* is a technical term made use of in the country, where the work about to be described is in common practice; and it has been retained in this translation, because it cannot be rendered by any adequate word in the English language.

CHAPTER I.

Of *Pisé* and its Origin.

Pisé is a very simple manual operation: it is merely by compressing earth in moulds or cases, that we may arrive at building houses of any size or height. This art, though at present confined to the single province of the Lyonnese in France, was known and practised at a very early period of antiquity, as appears from a passage in Pliny's Natural History, book 34. chap. 14, which is exactly descriptive of this manner of building.

Mr. Gouffon, who published a treatise on *Pisé* in 1772, is of opinion that the art was practised by the Romans, and by them introduced into France; and the Abbé Rozier, in his *Journal de Physique*, says, that he has discovered some traces of it in Catalonia; so that Spain, like France, has a single province in which this

ancient manner of building has been preserved. The art, however well deserves to be introduced into more general use, the cheapness of the materials which it requires, and the great saving of time and labour which it admits of, must recommend it in all places and on all occasions; but the French author says, that it will be found particularly useful in hilly countries, where carriage is difficult, and sometimes impracticable; and for farm buildings, which, as they must be made of considerable extent, are usually very expensive, without yielding any return.

(To be continued.)

HEDGING.

TO THE EDITOR OF THE AMERICAN FARMER.

Brandywine, 12th 3mo., 1821.

FRIEND SKINNER—The season is now present to pay attention to *Hedges*—A few hints may not be amiss to arouse the recollection of some who have resolved, but for the present put the resolution by, till "a more convenient time;" and have never yet put the subject into practice—the planting alone—others who have gone a little further and planted, and for want of further care have neglected filling up the vacancies occasioned by some few dying, by the dry season, or some other contingency, that all our labours are more or less subject to.—Their hedges have gaps or vacant spots, that have not only a disgusting appearance, but a serious inconvenience as the vacant spots must be supplied by some kind of dead material, uncongenial to the living; but if planted by the setting young quicks in amongst those so far advanced, they become underlings, and never gain strength enough to make uniformity in the hedge; and if they are filled with old stocks their chance of living is often labour lost.

The only way to avoid those evils is to never let the second season after planting pass over, without examining if all is living, and where any are missed or failed in their growth; if it is but a single one, never let the opportunity pass without substituting another in its place; & the substitute ought to have equal strength with those planted the year previous, or if they have stood two years without filling, the same rule ought to govern, to match the substitute to suit the first planted stocks.

The present time is important (in our latitude) to plash and prune, and remove every kind of rubbish that is interfering with the growth of the thorn. Although it is a rugged looking shrub, there are others whose influence are evident to admit a doubt, of producing disease, and even death if near to it.—The black walnut has never failed in a single instance that I have taken into notice—the evergreen cedar also produces a singular disease of first protuberating the small branches, and by a slower progress ultimately produces death by what I should term a chronic disease.—The planting, or sowing the thorn seed in ground that has been occupied with *onions* the year previous, has also had the effect to kill the young quicks, after growing to some size—an

FOR THE AMERICAN FARMER.

What can be substituted for Clover and Plaster, where the last will not act?

MR. SKINNER,

I am one of those, who as a farmer, feels and acknowledges himself more indebted to the able and excellent author of *Arator*, than to any other native or foreign writer on Agriculture. I am sure at least, that his system is better suited than any other, to the thin light soil, and arid climate of the southern states; where Indian corn constitutes the chief crop; where the clover husbandry cannot be successfully applied to one fourth of the lands; and where of course, other plants must be sought for and substituted in its place. That part of his book which illustrates and enforces the utility of *enclosing*, is perhaps the most valuable. It is in vain to talk to the proprietor of an exhausted plantation of 3 or 10 hundred acres, of the necessity of enriching it with manure. While he acknowledges the melancholy fact of its poverty, and the absolute necessity of improving it, he will tell you that his resources will not enable him to manure it in half a century. He must look to other means of amelioration—and what are they? Every body knows the magical influence of plaster & clover in a soil and climate to which they are adapted; but in the lower districts of the southern states, I think that at least three fourths of the land is utterly unfit for clover. What substitute then is likely to be most useful? Some of the fore ign grasses do well, but is it not probable that many native grasses, not weeds, may do still better? That plant, whether grass or weed, will be best, which is most easily propagated, which yields the heaviest crop of vegetable matter, and which, can at will, be eradicated by tillage. Allow me to suggest this subject for inquiry amongst your numerous and intelligent correspondents. For myself I should be obliged to any of them for information; more especially concerning the *Magdalen* bean, which I dare say is so well known in the lower counties of Maryland.

March 3d,

X. Y. Z.

FOR THE AMERICAN FARMER.

TO IMPROVE THE QUALITY OF THE POTATO.

Morefield, Feb 18th, 1821.

MR. SKINNER—I have heard many years back that the best way to improve the potato, was from the seed of its own apple. About five or six years past, I made the trial—I gathered a handful of the apples of the blue potato when fully ripe—I mashed them, and washed out the seed and dried them—In the spring I sowed them in drills—they came up very thick, having the appearance of some small weeds—In two or three weeks they put out leaves, having the appearance of potatoe—I then thinned them, and worked them as thought right—In the fall I had seed of many kinds, white, blue, and red, of various shapes and complexions—I selected four or five kinds in the spring, and planted

each separate, and found I had improved my potatoes very much as to flavour—and also, some of the kinds I selected was very productive, so much so that I planted on more of my old seed, and do still consider the change advantageous.

ABEL SEYMOUR.

To the Editor of the American Farmer.

A cheap Stercorary, or practicable method of enlarging the Manure Heap.

Keep a small stock of cattle, which feed in a well fitted pen, (made as comfortable as possible,) through the winter. Have a pen made of posts and rails, near your horse stable door, sufficiently large to contain all the dung and litter from the horse stable until March, where deposit every week all the dung and litter from the stable, which always litter well after cleaning out.

In the spring before you sow oats or plant corn, apply all the manure from the cow pen and stable pen to the land most requiring help. Then draw into the cow pen, and for litter for the horse stable, the remainder of your rough provender, when it is sufficiently unprepared with the urine and dung of the cattle and horses, commence a stercorary, or manure heap, in the field, and to it, collect all the manure you can through the summer, to be applied to fallow in the fall.

Common farmers are chargeable, with at least, two great errors in respect to manuring land, which can be easily remedied—The first, is keeping too much stock, and the second is, that they suffer their manure about their yards and stables to waste. If cattle are confined on good beds of straw, hicks, &c. through the winter, and the manure in the spring applied as before directed, and all the rubbish of the treading floor, &c. afterwards passed under the cattle and horses, collected to the heap in the field, the quantity of manure collected in the course of the season will be very considerable. I have frequently been displeased on reading the opinions of practical farmers, (men of observation and experience) that the more stock on keep the more manure you will make, when the very reverse is the fact, and I will venture to say, that if you will take thirty head of cattle, and provender enough to take them through the winter, and give me fifteen head, with an equal quantity of provender, that I will make, at least, double the quantity of manure you will, and I believe more.

An excessive number of cattle not only eat up the provender in the winter, but they also impoverish the pastures in the summer—they are turned out early in the spring, before herbage acquires any considerable growth, and the fields are kept bare and hard trodden all through the season.

Scientific men differ very much respecting the proper state to apply manure: Some are in favour of long muck—some in favour of well rotted manure, and although Dr. Mose has conceded the point in favour of muck, all my experience proves, that much depends on the seasons, different seasons will produce different effects. I have applied both kinds in different seasons, and have paid some attention to their effects, but I never could discover a uniform operation. But I would not recommend the application of coarse muck, to corn ground in the spring, as by our Maryland practice; it must be turned up to the surface, before putrefaction could take place: it would do better on oat ground, if the season should prove wet. But our great error is, not only, that we do not apply manure properly, but that we do not make it in sufficient quantity.

I have no chemical knowledge, and cannot say whether manure would be better kept under cover or not, but I consider a stercorary, with a pump, a useless building. I have made many manure heaps in my fields at different times, and I generally found that the rains of the seasons kept them sufficiently moist, and I do not recollect, that I ever had any

evidence of this circumstance, happened in (my neighbor) Wm. Armour's garden, in 1819. His thorn seed were planted in drills, for the convenience of nursing;—and his drills happened to extend into a spot of ground that had been cultivated with onions the summer previous—and the thorn all vegetated with unfertility—and in the course of dressing them through the summer, he discovered when the hot weather came on, they died, every plant of them in the ground, that had been occupied with onions the foregoing season—the other part of his nursery grew as well as usual.*

I have no doubt of many other of our valuable products, that have such antipathies as to defeat many of our operations in the pursuit of Agriculture, that pass unnoticed by the most attentive observer, how readily must they escape the notice of the unobservant husbandman that is plodding on in the path tracked out by his forefathers, without presuming to deviate either to the right or to the left—either in his routine of crops, or mode of culture. Not taking into consideration, the congeniality of one plant to that of another kind; consequently one crop to another, that is doomed to follow it whether friendly or unfriendly.

These are important considerations—first as it regards the return product of our labours, and secondly as it regards the improvement of the soil we cultivate—the latter of those considerations is always accompanied with flattering prospects by bettering our condition with a more abundant share of the comforts of this life with less difficulty in the pursuit.

I have not been disappointed in my anticipations of the benefit arising from the "*American Farmer*" Having endeavoured, previous to the existence of this establishment, to promote some kind of Journal or record of facts, that should not be lost to the community.—The very small portion that falls to the lot of one individual, to aid the great science of Agriculture is but like a drop in the bucket—but the aggregate notice if faithfully communicated, amounts to a valuable mass of information—that paper will be an interesting record.

When we find practical farmers relating facts with *fidelity*, there is mostly instruction. But where scientific knowledge is combined with practical experience, much more light is often cast on the subject.

But where scientific disquisitions prevail unaided by a sufficient degree of practical understanding of the subject, we ought cautiously to adopt, or place unlimited confidence, more especially if we find *facts* called in question in support of theory.

We are so prone to make every circumstance in a case, bend to our favorite theory, that the true merits of the subject are often lost in the inquiry.

Having departed from the subject of the thorn and hedging, the only part useful to the community, I leave the residue, or latter part for thy own amusement, with esteem from

CALEB KIRK.

* A part of those quicks were sent to our worthy friend, Sir John Seabair in Europe, although I did not think of mentioning it to him.

manure in those heaps to suffer for want of moisture; sometimes, when the heap was too high, the unrotten straw at the bottom, for want of air, was taken up in as fresh a state, as to colour, as when placed there, though sufficiently moist, but this never happened when the heap was not too high.

A.

For the American Farmer.

Stewenson's Point, Perquimans Co's, N. C. 2
Jan'y 12th, 1821.

DEAR SIR,

While I am very much interested in, and improved by your invaluable paper the "American Farmer," I felt myself much embarrassed in my agricultural pursuits by an enemy, which has attacked every part of my farm, and the farms of most of my neighbours, compelling a rapid succession of crops, or rendering our lands wholly unfit for small or winter grain. This enemy is nothing more nor less than what we call the Wild Pea, originally brought as I understand from Ireland for pasture. This pea comes up in the fall or winter, and can stand any weather with the wheat; early in the spring we perceive it making rapid advances, keeping a little under the wheat, until about the time it begins to head, then it runs up attaching itself to the stalks of wheat, having little vines or roots for the purpose at every joint, resembling the grape vine, in that respect; then it shoots above the wheat and forms a complete mat, and where thickest bears the wheat down, and entirely destroys it. When the wheat is not destroyed, it is rendered unsaleable by the mixture of the pea, which is black, round and hard, and about the size of the common bird shot, so near the size of the wheat that no riddle can take it out. I am told it is a fact, that when once the ground gets well stocked with this ungenerous adversary, it may be cultivated seven years in succession in Indian corn, and then a sufficient stock will remain to again, after one year's rest, destroy the wheat crop. I know of no grass better calculated to improve lands for Indian corn; it completely covers the ground, and can be twice or thrice cut in the course of the year; it makes most excellent hay, but if any of your numerous subscribers can put me in the way to destroy it, I will gladly get rid of it, and resort to manures and other artificial grasses.

While addressing you, permit me to observe, that my farm lies in the shape of a triangle, and is washed on two sides by the sound and river, the banks of which are from two to six feet above the common tide, and that I am losing upon a fair calculation, about five feet of land annually on the water. I have tried brush, and one of my neighbours went so far as to make an experiment of a bulk head or wharf of plank and scantling, giving it a slope of about forty-five degrees, but all to no effect, soon undermining and washing away. This is a subject particularly interesting to me, and must be to many who live as I do upon the banks of wide water courses. If you will be pleased to make inquiry upon the above subjects, or give place to this hasty scribble, in your paper, you will greatly oblige

Sir, very respectfully y'r ob't,

JOHN H. JACOBS.

To the Editor of the American Farmer.

LAUREL SPRINGS, Montgomery County, Ga. 2
February 15th, 1821.

MR. SKINNER,—I have been so much amused by the squibs and crackers of your friend Jeremiah, that although ill qualified for the task, I cannot forbear attempting to answer his enquiries on the subject of spaying, which I find in your No. 44, Vol. II. I must inform him that I am not a practical spayer, although I have once or twice, by way of experiment, performed the operation with success, and frequently attended when it was done.

Your sows are fit for spaying any time after they are two or three months old, except while they are forward with pig. The best time is just as they are taking the boar for the first time, because then, the ova, or pride as it is usually called, is larger, more easily found and taken off.

Letter A represents a forked stick, sufficiently strong to bear the hog you intend to spay. B B, soft leather strings double; one tied to each end of the forked stick A; the lower ends of these strings are looped over the hind legs of the sow, just above the hock.



The forked stick A, is then put over a pin sufficiently high to raise the hog from the ground. One man should then hold the fore feet of the hog, in one hand, & the snout in the other, in order to keep the hog as still and quiet as possible; the operator then, with a sharp knife, makes an incision in the belly, commencing between the two hinder teats, and continuing it till it is sufficiently large to admit his fore and middle finger; with these, he is to draw the womb, (which lies near the spine) forward, (it will be easy to distinguish it from the intestines, though not easy to describe the difference in this communication.)

Now comes, what to me, was the most difficult part of the operation, viz: continuing my hold on the womb, and shifting its position until I had found the prides (of which there are two, from the bigness of a garden pea, to that of an ounce ball, having the appearance of excrescences, very much resembling a large seeded, white raspberry, being somewhat more ruddy.

Perhaps it may not be improper to add that one part of it appeared as though it had been slightly injured, and in curing, had left a scar; this is called the fork from whence the womb branches off, and at the extremity of each branch, a pride is found, apparently protected by a thin membranous substance which partly envelopes it, and which should be left when the pride is taken off; observe, both prides must be entirely taken off, for if any part be left, the sow will have pigs, though her litters will not be numerous.

After the pride is taken off, the womb must be let go, and it will return to its place; the incision must be carefully closed with a strong waxed thread of flax or cotton, taking particular care that the inner membrane of the belly be well taken up, otherwise the sow will become ruptured, or what we call bussened.

In addition to facilities spaying affords for selecting our breeders, I can inform friend Jerry that I have by spaying old sows in the Spring, made good bacon the following Winter, when I was satisfied they would have died but for the

operation, and I have sometimes been inclined to think that my spayed sows fattened more kindly than my barrows of the same age.

I shall not attempt to apologise either for the length or diction of this letter; it is my mite; I could say mite, and I am satisfied that you will not cumber your paper with it, should you not think it likely to be of some use; and to remunerate you for reading it, (should it not be serviceable to your friends) I enclose you a copy of an old work which has become so scarce, and is so highly esteemed in this part of the country, that a large majority (among them, many who can't read) are really clamorous for a new impression, or as the booksellers say, another edition, with additions; if you like it, you can send me the third vol. of your Farmer in exchange.

And oblige

your obedient servant

JOHN A. JONES.

The editor has an appointment with a sow gelder, to meet him on this day (Friday) at twelve o'clock at Bovally, to witness the operation on some sow pigs. It has taken him several weeks to find a person skilled in this intricate subject, and he has, moreover to pay ten cents ahead for the surgeons services; whereas, every farmer ought to know, and to have one or more of his people taught how to do it. If any gentleman wishes to be initiated in the mystical operations of sow gelding, let him attend at the time and place above mentioned. There is scarcely any kind of knowledge so humble as to be unworthy of acquisition, or so inconsiderable as not to be useful on some occasions.

Edit. Am. Far.

CALVES.

Method of rearing Calves as practised by an eminent farmer of Massachusetts.

"Calves are more easily weaned when taken from the cow the third day, than at a later period. My practice has been to take milk in a small bucket, add a little hot water to make it as warm as milk from the cow direct; then by putting the calf's head to the bucket, and the finger immersed in the milk, the calf will suck readily, and in a few days will drink himself; when you may give skim milk—add considerable water, and enrich it with wheat, shorts or good bran—the former is best sometimes with a little indian meal. In a few weeks the calf will eat fine clover of the second crop—(rowing as we term it). I then have two boxes a foot long, eight inches wide, and three inches deep, without covers, nailed fast against the side of the calf pen; in one I keep a pint of indian meal, in the other a gill of fine salt, to both which the calf applies very often; the meal will soon require to be replenished every day, the salt every week, sometimes oftener. I then keep a bucket, or rather a shallow tub, that will not be turned very easy, filled twice a day with water, that he may drink when he pleases. I sometimes give a little flax seed in the meal, whole without cracking or soaking; 4 or 5 times every day a small feeding of rowing or fine hay is given, no more at one time than he will readily eat clean, and invariably keep the pen clean, the bottom covered with six or eight inches clean straw, and renewed or replaced as it becomes dirty. Oil meal, ground from the cake, after the oil is expressed, I have used, and thought (considering the price) it answered quite as well as flax seed."

Easy method of cleaning Paper Hangings.

Cut into eight half quarters, a quarter loaf two days old, it must be neither newer nor staler: with one of these pieces, after having blown off all the dust from the paper to be cleaned, with a good pair of bellows, begin at the top of the room, holding the crust in the hand, and wiping lightly downward with the crumb, about half a yard at each stroke, till the upper part of the hangings is completely cleaned all around—Then go again round with the like sweeping stroke downward, always commencing each successive course a little higher than the upper stroke had extended till the bottom be finished. This operation, if carefully performed, will frequently make very old paper look almost equal to new.

Great caution must be used, not by any means to rub the paper hard, nor attempt to clean it the cross or horizontal way. The dirty part of the bread too, must be each time cut away, and the pieces renewed as soon as at all necessary.

To Prune Vines to advantage.

In pruning Vines, leave some new branches every year, and take away (if too many) some of the old, which may be of great advantage to the tree, and much increase the quantity of fruit. When you train your vine, leave two knots, and cut them off the next time; for, usually, the two buds yield a bunch of grapes. Vines, when thus pruned, have been known to bear abundantly, whereas others that have been cut close, to please the eye, have been almost barren of fruit.

Excellent substitute for Table Beer.

As small beer is apt to become sour in warm weather, a pleasant beer may be made by adding to a bottle of porter, ten quarts of water, and a pound of brown sugar or molasses. After they have been well mixed, pour the liquor into bottles loosely corked, and place them in a cool cellar. In two or three days it will be fit for use; a spoonful of ginger added to the mixture, renders it more lively and agreeable to the taste. This might be adopted in the Navy instead of grog.

Chinese method of mending China.

Take a piece of flint glass, beat it to a fine powder, and grind it well with the white of an egg, and it joins China without rivetting, so that no art can break it in the same place.—You are to observe that the composition is to be ground extremely fine on a painters' stone.

German Furniture Gloss, or Polishing Wax for Mahogany.

Cut in small pieces, a quarter of a pound of yellow wax, and melting it in a pipkin, add one ounce of well pounded colopong, or black resin; the wax and colophony being both melted, pour in by degrees, quite warm, two ounces of oil, or spirit of turpentine;—when the whole is thoroughly mixed, pour it into a tin, or earthen pot, and keep it covered for use. The method of applying it to the furniture, (which must be first well dusted and cleaned) is by

spreading a little of this composition on a woolen cloth, and well rubbing the wood with it, and in a few days the gloss will be as firm and last as varnish.

Method of taking the rankness and disagreeable taste from Irish salt Butter.

The quantity purposed to be made use of, either for toasts or melting, must be put into a bowl filled with boiling water, and when the Butter is melted, skim it off, by this method it is so separated from any gross particles, that it may require a small addition of salt, which may be put into the cold water that is made use of in melting but for sauce; and though the butter is oiled by hot water, it becomes a fine cream in the boiling for sauce.

To the Editor of the American Farmer.

ELMWOOD, March, 1821.

Dear Sir,

You inquired of me some time past, respecting the cause of rust in bacon, and I then mentioned to you that bad feeding was the principal cause. My own bacon having contracted something of this, has caused me to pay more attention to it. I will now give you all the information I possess: right or wrong. What doctors would call the proximate cause of the disease, is the repeated melting of the fat parts, by the fire used in smoking, i. e. every time the fire is made; thus melting and cooling, will render hotter, and indeed every concrete oil, rancid. And butter to which ice is immediately applied in hot weather, will spoil in a few hours after removing the ice, which would have remained sweet without the ice. Now, it is very evident that the fat of hogs, not cured, will melt with half the fire that would be injurious to better meat. But there are other ways of meeting the same fault; too heavy fires in a close smoke house will effect the same, even if cured. But the points to which I wish to draw your attention are the two following:

1.—Meat that is perfectly dry before smoking will rust, when meat fresh from the salt tub will not; simply because the fat melts easier when thus dried than when dripping with grease, and the meat will smoke in half the time, and with half the fire.—Those who have two killings of meat will mind this, and it was in aiming to make one job in smoking of meat killed three weeks apart, that I met with my misfortune in some of the lighter pieces.

2.—But there is a more general cause, I think, than the above, and more difficult to manage. It is this—that in very cold winters, and especially in solitary houses, exposed to north winds, the meat will freeze, and if the fire is then applied, I believe the result will be the same as the butter, before mentioned; rancidity at the first using. Perhaps it would be well to let the meat thaw before any smoke was made, and in all cases too much warmth will be injurious, as well as too little.

Yours,

S. V. S.

To the Editor of the American Farmer.

DEAR SIR,—In your paper of 9th March, I observed a short letter signed H. contradicting an assertion of mine respecting magnesia lime. I may observe that there is in his letter, more of contradiction in word than in deed; for it is plainly inferred in the piece signed "Silvanus," that magnesia is an alloy to lime, and therefore, that *much* is necessary to get the benefit of lime; and though the word *much* is a vague term compared to per cent. yet it admits the comparisons *more*—*most*. H. there-

fore, the alloy was more in the experiment alluded to by H. than in the British compound, there was every reason to believe, *without any contradiction*, that vegetation would be suspended, or not promoted. No agricultural writings speak favourably of magnesia, and none tell us whether it acts by destroying the good qualities of lime; or whether it acts on the earth, or on the vegetable itself. Your correspondent H. says it acts by heat. I should like to know his chemical experiment, or his thermometrical observation that determined this quality.

S. V. S.

To the Editor of the American Farmer.

SUMMIT DISTRICT, S. C. }

2d March, 1821. }

DEAR SIR,—I will be glad if you, or some of your numerous patrons, can direct, (through the medium of your useful paper, the AMERICAN FARMER) a preventive or remedy, for the sore eyes in hogs, which disease raged among my stock the last summer, after a very wet season; and some persons thought it was occasioned by their eating mushrooms (of a poisonous quality) which were produced in great abundance by the preceding moisture—it has recently made its appearance again, after a wet winter, but I am unable to decide upon the cause. The first symptoms, are a great discharge of mucus from the eyes, the balls of which turn a whitish, or pale blue colour, and in some cases produce total blindness for a while; the forehead and mouth becomes swelled, as also the feet and legs, the hair turns up, and the skin frequently comes off in sores. While on the subject of hogs, is there any preventive, or cure, for the measles, which prevail more or less every year; in many instances it is not observed until the hogs are slaughtered and cut up, when it is discovered, interspersed all through the lean part of the meat.

Respectfully, one of your
SUBSCRIBERS.**THE FARMER.**

BALTIMORE, FRIDAY, MARCH 30, 1821.

The Editor of the American Farmer to his Subscribers and the Publick.

The last number closed the second volume of this Journal. It is not for me to say in what manner my promises have been fulfilled, but if my subscribers be satisfied, I have every reason to be, not merely satisfied, but grateful. On this occasion I ask leave only to mention, that I was the first to break the ground, and take the field in defence and for the improvement of *American Agriculture*, without materials or resources of any kind, except my own early imbibed and heartfelt devotion to the interests of the plough. Heavy expenses were incurred, and the paper put forth, without waiting for patronage, or even the promise of it. I am proud to say that my exertions in the good cause, have attracted the confidence and the support of very many of the best and most eminent citizens of the Union of all parties. Located in a central position, the American Farmer registers the faults, while it promulgates the improvements which have been introduced in the systems of Husbandry in the North and in the South—in the East and in the West, and it addresses itself impartially to the interests of all.

I hold nothing to be more incompatible with the spirit of the Agricultural character, than *jealousy* of those who are labouring in the same field. The passion is even ridiculous in the eyes of men of good sense, nor should I care if a thousand more agricultural papers were set on foot, if I did not believe that the inevitable consequence would be that *all would soon fall to the ground*, or become spiritless for want of sufficient patronage. In all England I know of but one periodical journal on the plan of this, and but one in Scotland—experience proves that they cannot be supported—These two have endured for many years and continue to improve in variety and usefulness.

It is not sufficient to ensure the good effects of a journal like this, that it should *barely subsist on a limited circulation*, like a common country newspaper. The publication, in this country, which is devoted to the development of the means of internal improvement—to the protection of the interests and the improvements of the Art of Agriculture, ought, of all others, to be *national*; the objects for which it is established being, emphatically of that scope and character. Such a paper ought to be supported to an extent, which should give it life and activity—which should warrant the Editor in sparing no *expense* in procuring materials of all sorts—such as engravings, foreign publications—an extensive library—a small chemical apparatus—an experimental farm—rare and valuable seeds—plants—fruit trees—domestic fowls and animals, &c. &c. I sincerely wish I had the means to conduct this paper on a plan, which would enable me thus to combine theory with practice, correcting the notions of the one, by the sober experience of the other. As yet all I have been able to do, by two years of *hard labour and intense application*, has been to accumulate a fine library—to establish an extensive correspondence with eminent agriculturists at home and abroad—to impress a conviction of the earnestness of my desire to be useful, and to have it in my power to give assurance of *improvement hereafter*, in proportion to the generous encouragement received within the last year. I can only say, that I am just now fairly under way in my editorial career, and I trust that my *friends*, (for so their deportment gives me the confidence to call my subscribers,) will continue to support me as long as I continue faithful to the trust reposed in me. I am well aware that the times bear grievously hard on the tillers of the soil, but that, I should apprehend, is the very time to seek for information on the means of increasing the products of the soil, to the greatest extent, and by the least expensive means; and keeping these objects strictly in view, I humbly apprehend that there are single essays in my journal, communicated not by me, but by my correspondents, or extracted from the books; which are worth the sum paid for the whole paper. So at least, I, as a farmer, should certainly consider many of them. The article on *Pisé* or *bird* buildings alone, commenced in this number, before it shall have been completed, will have cost me upwards of 50 dollars—But I have said much more than I intended, and my readers are respectfully reminded, that I do not often dwell upon my own concerns, as the only apology, if any, which can be made, for the present intrusion.

The Editor will continue to have furnished for his subscribers, without commission, any seeds or implements which may be advertised in the Baltimore papers: the money being sent for the same.

Subscription is now due in advance for the *third* volume of the American Farmer, of which this is the first number. The first and second volumes may now again be had complete—in sheets at 4 dollars, or well bound at 5 dollars per vol—*Don't forget the advance for the third volume.*

JOHN S. SKINNER, EDITOR.

At the termination of the volume, it always happens that some discontinue their subscriptions, and others are struck off for want of punctuality. The Editor will consider it a great favour if those who continue their support, would use their influence to add some names to our list—to enable us at least to hold our own until times get better. The Editor

pledges himself to justify their recommendation in the contents of the third volume.

Pisé or *earthen buildings*—The present number contains merely the introduction to this interesting subject. It will be continued in the next, with engravings of the implements, &c. &c.—used in the operation.

The Index for the second volume of the Farmer, will be much more minute and accurate than the one attached to the first volume; and we hope it will be printed, along with the title page, in about ten days.

The Editor requests the favour of some of his friends, to send him a few cantelopes and melon seeds of the best quality.

On the Editor's stock farm, at Rovalty, it is intended to plant an *extensive nursery*, not of ornamental trees and shrubbery, but of all the most valuable *fruit trees*. SEED will also be saved from the best granaries, and the most improved roots, melons, kitchen garden vegetables, &c. &c. &c.

AGRICULTURE AND MANUFACTURES.

In a part of the proceedings of the Agricultural Society of New York, The Farmer's Journal of London, dated January 1st, 1821—makes the following comment:

"It is a curious and interesting fact, that a meeting of the New York Agricultural Society, was held in November, to draw up a memorial to Congress in favour of protection to their manufactures, by increased duties on imports. Their resolutions express their conviction, that 'their agriculture and domestic manufactures, are materially connected in their prosperity; and that the prosperity of the latter opens a home market for the other's produce.' The inhabitants of such an Agricultural territory, could not be more at odds with their own interest, since the protection they aim at will at once raise the price of the clothes they wear, and lower the value of their corn."

There was raised on the farm of R. H. Rose, at Silver Lake, Susquehanna County, Pennsylvania, 1820, Indian corn, at the rate of one hundred and thirty-six bushels, shelled per acre. It was the short, white eight rowed corn; and was planted in rows three feet apart; the stalks nine inches from each other in the rows. Rather before the usual time in topping, the stalks of every other row were cut off just above the highest ear. The tassels were suffered to remain on the other rows till the crop was harvested. The corn was planted on the third of June, and gathered on the sixteenth of September. It requires a rich soil.

The produce of a field of pumpkins on the same farm, was at the rate of twenty-seven tons and an half per acre. They were planted in hills, three feet apart one way, by six feet the other.

The soil in both these instances, was a sandy loam, and in fine order.

To stain Horn, to imitate Tortoise Shell.

The horn to be stained, must first be pressed into proper plates or scales, or other flat form. The following mixture must then be used: take of quick lime, two parts, of litharge one, and temper them to the consistency of a soft paste, with a soap lye. Put this paste over all the parts of the horn, except such as are proper to be left transparent, in order to the greater resemblance of the tortoise shell. The horn must then remain covered with the paste, till it be thoroughly dry; when the paste being rubbed off, the

horn will be found partly opaque, and partly transparent, in the manner of tortoise shell; and when put over a fire, will scarcely be distinguishable from it. It requires some degree of fancy and judgment to dispose of the paste in such a manner as to form a variety of transparent parts of different magnitude and figure to look like nature. This may be done by mixing whitening with some of the paste to weaken its operation in particular places, by which spots of a reddish brown will be produced; that if properly interspersed, especially on the edges of the dark parts will greatly increase, as well the beauty of the work, as its similitude to the real tortoise shell.

Baltimore, March 30, 1821.

PRICES CURRENT.

Flour, from the wagons, \$3 37½—Whiskey, from do 22 cents per gallon—Wheat, 65 to 68 cents—Barley 45—Oats, 25 cents—Corn, white, 23 to 24—Yellow, 36—Cod-fish, per quintal, wholesale \$3, retail do. \$4—New England Beans, per bushel, \$1 12½—do. Peas, 75 cents—Ground Plaster per ton 8 50, per barrel, \$1 45, per bushel, 35, in the stone per ton, \$5 50—New-Orleans Sugar, \$8 75 to 10—Muscovado, do \$7 50 to 9 25—Amer can White Oak, \$12 50—Ground, do. \$13 a 14—Lard oil, 75 cents—Peas, 40 to 45 cents—Hoy, per ton \$16—Straw, do. \$9—N E Potatoes, retail 50 cts. per bu.—Live stock, to \$5 c—Beef, prime pieces, 8 to 10 cts—Corn Beef, 7 cts—Mutton, 8 to 10 cts—Hams, 10 to 12 cts—Middlings, 8 to 10 cts—Butter, 2 to 25 cts—Cheese, 8 to 10 cts, per lb—Tur, \$3 75—Soft Turpentine, \$2—Pitch, \$2½—Rosin, common 1½—bright do, \$3 per barrel—Varnish, 45 cents—Spirits Turpentine, 33 cts, per gal—Cotton, good Upland, 13 to 15 cts, per lb.—Rice, 3 a 3½ cts—ship and flooring Plank, \$25 to 27—Shingles, best 6½ a 7 cts—S3 a 4½ M. Oak, wood, \$1 50—Hickory, \$3 per cord—Clover, seed \$6—Am. Orchard grass do. \$1—Eng. do. do. or Cockfoot, do. \$3—Herd, do. \$1—Timothy, \$3, Sanfoin, \$10—Millet, \$2 per bushel—Lucern, 75 cents—Sweet Cented Fernal 150 cents—Cow grass 75 cents—Trefol 50 cents per pound—Ru a. Baga, 75 cents—Mangel Wurtzel, 175 cents per pound—Cabbage seed, 25 to 37½ cts—Cauliflower 75 to 100 cts, per oz.—Spring Tares, \$8 per bu.—Pear, 25 to 75 cts, per quart—Onion seed, 20 to 75 cts—Leek, 31 to 37 cts—short orange Carrot, 12½ cts—Parsnip, 12½ cts—Lettuce, 25 to 75 cts—Radish, 12½ to 31 cts—Beet 1½ cts—Brocole 31 to 100 cts—Cucumber, 37 to 75 cts per oz.—Turnip seed, 50 to 125 cts per lb.

No sales of Maryland or Virginia Tobacco the present week.

TO AGRICULTURISTS.

HORSE POWER MILLS for grinding Corn and Cobb, at one, and the same time, and for that use only.

Do Do Do For craking Rye and grinding Corn into coarse Meal.

Do Do Do For craking Rye and grinding Corn into coarse Meal.

The above described Mills are of three different kinds, and constructed on two different principles—they will be exhibited by the subscriber, at Baltimore and Norfolk, in the month of April next; likewise, his newly improved Corn Sheller.

Notice will be given in the American Farmer, the time and place where they may be seen in operation.

PUBLISHED BY JOHN S. SKINNER.

A M E R I C A N F A R M E R.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua si bona norint
Agricolae." VINE.

VOL. III.

BALTIMORE, FRIDAY, APRIL 6, 1821.

NUM. 2.

AGRICULTURE.

REMARKS

ON THE IMPROVEMENT OF CATTLE, &c.

In a Letter to Sir John Saunders Sebright, Bart. M.P.
by Mr. John Wilkinson, of Lenton, near Nottingham

Let each succeeding race employ your care,
Distinguish which to slaughter, which to spare;
Mark well the lineage,—let the purest make,
From purest blood, its just proportions take.

(Concluded from our last.)

APPENDIX TO THE PUBLIC.

It was highly gratifying to me at first, that many who have given their most serious attention to these matters, should have thought me in any measure qualified to elucidate a subject of such vast importance; but it was still more so, when after repeated solicitations, and I had at length complied with their request in offering my remarks, that the remarks themselves should have met with so much approbation from the public at large. Nor can I pass over the pleasure I have felt at being told, that they have already been of considerable practical use.

I have had reason to hope indeed, that they may have been of some slight service in directing the attention to the shapes of Cattle, for laying on the greatest quantity of meat in the prime parts, and in describing the best kind of flesh,—in shewing, that the fattening qualities of Cattle are not incompatible with the milking, and that the latter therefore ought by no means to be neglected,—and lastly, by pointing out the absurdity of keeping an inferior animal on pretence that it is well-bred.

In these particulars, I had observed many and grievous mistakes; and it was really lamentable to find with the present desire of improvement, that some had given large prices for animals, that were in themselves so extremely defective. It happened, therefore, that the end proposed in several cases, was not answered; and a consequent disappointment was thrown in the way of future exertions. And hence it became desirable to give, in the most plain and simple terms, such general rules, as might enable every one in some measure to judge for himself.

In questions of a practical nature, experience must be attended to; and results carefully observed: for theory without practice, is generally idle and visionary; and of little or no use when put to the test. But then it is also to be remarked, that along with practice, the most patient thought and careful reflection, not only may be, but often are of the highest importance. In the case before us, for instance; to know what would be the best possible shapes for Cattle in their several parts (whether such animals could be exactly found or not) would be one of the surest means at length to obtain them; by selecting those continually, which most nearly approximate to the form itself.

Were people to think more indeed, errors in opposite extremes, would not so frequently follow each other. Light fleshed animals would not have been approved of for a single moment merely because some had plenty of flesh, were of a hard and bad quality. Of such, the trial need never have been made: it was obvious, they would not answer. By a little reflection too, it never would have been concluded, that Cows that were great milkers, could not also be quick feeders; for this at least could have occurred to the mind, that when they were wanted for feeding, they would at that time be dried of their milk; so that the objection, urged against their feeding, would

have fallen to the ground, even on its own principles. Again; most hard fleshed Cattle have also thick, hard skins; hence many have sought for such as have their skins remarkably thin, and these are too often of a very delicate and tender constitution. The truth is, though hard fleshed animals, are generally covered with a thick, hard skin; yet there is a skin of a certain substance, which is by no means hard, but of a rich and mellow feel, covering an animal exceedingly inclined to fatten. And these I think are very greatly to be preferred: for every one must perceive, that the skin is of the highest use to protect the animal from those various changes in climate, it is obliged to undergo.

But lastly: of all the errors arising from a want of due reflection only, (independent of a proper attention to facts) none can possibly be greater, than that of keeping an inferior animal to breed from, on pretence that the animal itself is well-bred. It is observed by the advocates of this system, that *breed will shew itself*; that the *qualities of the ancestry will be seen in the future stock*. True; and will not this law of nature then apply to inferior animals in the pedigree, as well as to the superior? It unquestionably does. In theory, there is the same reason for it holding in the one, as in the other: and in practice we find that this is the case. It is strange that persons who have fallen into this error, and have brought forward the foregoing argument in their defence, did not immediately perceive, that the argument was quite as much against them, as they took it to be in their favour. From this mixture of good and bad animals in the ancestry of some flocks and herds, it happens, that while we behold in the progeny some that are good we also find some that are very deficient: and on such stock, little or no dependence can be placed. I observed in the remarks themselves, that a bad animal has scarcely ever a good pedigree; that on examination, we shall generally find something wrong in the ancestry at one point or other: or that if such a case actually occurs, it is most probably owing to some accidental circumstance, such as illness, or injury received by the parent while pregnant, &c. &c. But supposing such a thing really to happen without any such accidental circumstances at all, then it is a deviation in nature, I think not less remarkable, than that a pair of rooks or blackbirds should produce a nest of young ones that are perfectly white. Whatever may be the real cause however of the birth of an inferior animal, we shall perceive in each particular case many and strong reasons why it should not be kept to breed from. If it has arisen from illness in the parent, its own constitution is most likely weakened and injured, and this in all probability would again be entailed on its offspring. If it be one of those strong deviations in nature, which may possibly occur (though I am persuaded very rarely takes place) without our being able to account for it according to the common course of things; then we know, as in the example given above, that this deviation, however great, may be continued; that white rooks being once obtained, a breed of the same description might by care be at length established: and moreover without this care, that the white colour would be almost certain to shew itself in some of the progeny. And by analogy, the same thing would appear reasonable with respect to deviations in make or shape: but what a practical man is most concerned with, it is so in fact. That the bad qualities as well as the good, are liable to be inherited, was a circumstance well known to the ancients, and has often been remarked by their best poets.

In bringing forward these examples in order to shew that if practice were accompanied by more re-

lection, many errors would certainly be avoided; I have at the same time selected them of this particular nature, the better to illustrate my own subject. But the observation itself, is one of so general a nature, that it applies to almost all our undertakings. I have chosen such, moreover, where the errors have not only been frequent; but where some of them are of that consequence, and particularly the last, that wherever a due attention shall not be paid to this part of the subject, there, much progress can not reasonably be expected.

I stated in the remarks, that no animal can be depended upon for breeding, but such as is in itself good, and is moreover well-bred in the strictest sense of the words; and I am persuaded that experience will bear me out in the assertion I might also have added, that when such and *such only* are used for this purpose, we need not be in the slightest fear of disappointment. Horace, a celebrated Roman Poet, well understood the importance of this when he expressed himself in language to the following effect; of which this translation may be given:

The brave are offsprings of the brave and good:
In steers and steels we trace the worth and blood
Of high-bred sires; "nor can the bird of Jove,"
Intrepid, fierce, beget th' unwarlike dove."

As if the poet had said; that where the ancestry is really good, there is almost as little reason to expect, that the valuable properties of the parents should fail in the offspring; as there is to expect that an animal of one kind, should ever be the parent of that of another.

From what has been advanced on the inheritance of peculiar qualities, it will immediately appear in the selection of Bulls, that besides attending to those properties which belong to the male, we ought to be careful also, that they are descended from a breed of good milkers at least if we wish the future stock to possess this property. It is of far more consequence indeed, that this should be the case with respect to the Bull, than it can possibly be with respect to an individual Cow; because the whole of his descendants will be effected by it.

Since the whole number of good Cattle in the country is at present unquestionably very small; I shall add a few words on what appears to me to be the most probable means of increasing it; but particularly with respect to the use of Bulls. I mentioned in the remarks, that in those districts where valuable animals were first introduced by Gentlemen themselves, I thought it would not be a bad plan to allow the Tenantry to improve from their own stock at a certain reasonable rate; and gave my reasons for the foregoing opinion. I find however, that some spirited Gentlemen who have obtained Bulls of me, being anxious to benefit their immediate neighbourhood, and particularly solicitous for the welfare of their own Tenantry, have allowed such to send their Cows to the Bulls without any compensation whatever. There can be no doubt but that such a disposition does them the highest credit; but still I think it would be more beneficial (I speak not on their own account, but for the neighbourhood at large) to take a certain compensation; and that too such a one, as should at least keep away the very

* The Eagle.

† The part between the inverted commas, is taken from the translation of Francis.

refuse of the Cattle.† Nor do I think it a bad plan, beside the usual charge for each individual Cow, to have an extra sum for all bull calves that are uncut at four or six months old. Where the cows are tolerably good, even if not remarkable for their breed, the heifer calves produced by sending such to valuable Bulls, may be very useful for future stock; though they cannot by any means be so well depended upon for breeding, as if their Dams had been thorough bred also. But such stock crossed time after time with the thorough bred Bulls, will soon arrive at a very considerable degree of perfection. If however persons breed from half bred Bulls as well as half bred Heifers, it is obvious that there is no continual advancement in blood; the progeny will still be only half bred. Why I would admit of this partial improvement from the Heifers, is this; because in the present state of things, a sufficient number of really valuable animals can not be procured; and by crossing them in the way I have just mentioned, each succeeding race would no doubt be considerably improved. Still however as the value of such a cross must depend partly on the excellence of the original stock of Cows, put to the thorough bred Bulls; I must again repeat, that I think very bad ones are better excluded altogether. My reason also for advising to charge an additional price for the bulling of any Cow, if the calf itself be reared as a Bull, is to prevent as much as possible the use of Bulls that are descended from moderate females; for on account of the extensive use that may be made of a single Bull, the good or harm done to a neighbourhood, according as the Bulls are good or bad, well bred or not, is much greater than most are apt to imagine.

But with every precaution, I know from what I have frequently seen, that it is no easy matter to prevent the use of bulls, descended from inferior cows. In the case of my bull Alexander (an animal well known in most parts of the country) when he was allowed to serve other person's cows, I found the greatest possible mischief arising from it. For as it frequently happens, that my applications for cattle are greater than I can supply, many were induced to give large prices to others for half bred ones descended from him; when the fact was, some of their dams were of the worst and most inferior kind. That the public therefore, might no longer be thus imposed on, I very soon determined to keep him entirely for my own use. And though while a yearling, he earned me so large a sum of money; and after I had made the restriction and his stock began to be seen, applications were made to me from various parts of the country, in some cases offering any sum that could be asked or given for the use of a bull; yet I have seen no cause sufficient to induce me to alter from my first determination; nor do I suppose I ever shall.

In districts where the Tenantry themselves procure good cattle, there I should by no means advise the landlord to allow the neighbourhood to send their cows to bull of his own at an under price, if he possessed a valuable one; because this would have a tendency to damp the emulation of the tenantry among each other, and to deprive the most spirited and skillful among them of that reward they are so justly entitled to. One thing is very certain, that there is a greater desire for improved stock in the present day than was ever before known. Nor can we be at all surprised that this should be the case, for those who have had an opportunity of seeing the vast difference that is made in the return between good and bad animals, would naturally be very anxious

for the former, though they may incur a little expense in the first establishment of a breed.

And here I cannot refrain from passing my highest encomium on the board of agriculture. The liberal premiums proposed by it, on various occasions, together with the enlightened experience of many of its members, have, and I trust will ever continue to be, productive of the greatest good. When we behold men of the rank and opulence of its noble president, devoting so much of their time and attention to the public welfare; if the inferior orders and middle classes of society, ought, surely never to think it too much to exert themselves on their own behalf. Such noblemen and gentlemen by their various experiments are continually discovering something new, and of importance: the experiments that fail, fall entirely on themselves; while those that succeed, are generally made known to the public at large. By this rank in life, they render the pursuit of agriculture respectable; and by their liberal assistance, they rouse many to a degree of exertion which is not unfrequently crowned with success.†

Whoever wishes to make himself acquainted with the value of fat and lean cattle exposed for sale at the different markets and fairs in various parts of the country, cannot do better, than consult the *Farmer's Journal*. This is a publication indeed, that no agriculturist ought to be without. To a man of business, its trifling expense is soon repaid by the correct information he may receive, as the prices of not only one kind of agricultural produce, but of almost every description whatever; by which means he will be enabled to adopt the more prudent measures, as to such articles, as he himself may have to dispose of. It contains moreover a fund of information, on practical subjects, belonging to agriculture, from the joint contribution of the most scientific men of the day. To mention the signatures of Sir John Sinclair, Mr. Hall, Mr. Blake, and Mr. John Eliam, Jr. might alone suffice; but to these, if need be, many more of the first note, could easily be added—the whole being arranged and corrected under the inspection of an intelligent editor.

I have only to add again in conclusion, how much real pleasure, it has given me, to have received the approbation, of so many intelligent men; and most sincerely wish that my "remarks" were still more worthy of their attention. And I can assure all, if specimens of cattle please them better than description, that they are extremely welcome to a sight of any, or the whole of mine, at any part of the year. For as I never make a point of forcing them by extra keeping, I am quite regardless of the time they are shown. The improvement of the stock of the country, indeed, is a subject of such vast importance, that it can never be made too clear; and on this account, I shall always be happy, to adopt every means in my power, to facilitate so great an object.

Should this pamphlet fall into the hands of any, who have been waiting for heifers from me, and have thought themselves neglected by not receiving them so early as they might imagine; I have only to assure them that it has arisen from others, who have given a prior order, either taking more than I at first expected, or putting in their claim for a second supply; and that every attention has, and will still continue to be paid, to serve all as soon as possible.

* The Right Honourable the Earl Hardwicke.

† I might here mention the aid afforded to the improvement of stock, by the various exhibitions in almost every part of the country, established either by the munificence of distinguished individuals, or the joint contribution of the respective members—in most of which societies, we generally perceive the nobility and gentry of the neighbourhood come forward in such a way, as does them the highest credit.

‡ The concluding page of each journal contains a list of the prices of all kinds of corn, seeds, meat, hay, straw, &c. &c. both in the London and also in the most important of the country markets. Nor is it of small moment, that if there be a sudden rise or depression of the various articles, the cause is generally adverted to.

I ought perhaps here to mention generally, that from the great demand I have, my plan has been, if any one applies at a time, when I am unable to spare any to make a memorandum of the application, if wished; and then to send word as soon as I have such to part with, as are likely to suit.

From this demand too, my bulls and bull calves are disposed of at all times of the year; several of the bulls are frequently sold or re-let in September, soon after their return from former engagements; and many of the bull calves often disposed of during the first summer, that is, as soon as they have been well reared and are ready to send off. The plan that many have adopted therefore, that live at a distance, is to write to me to know, if they can be supplied with a bull, bull calf, or heifers; and if not, how soon they can. In which case I describe what I have, if any to part with at the time, what are coming forward, and how soon they will be ready; so that by this means, they have the trouble of one journey only. Perhaps a gentleman, who takes this plan, will think it too much to pay the postage; for though the expense of each letter is but trifling, yet from the number I receive, it would soon amount to a considerable sum. Some who live at a great distance and have seen the cattle I have sent to neighbouring places, have left the selection entirely to me; but though I have had the pleasure of finding, that those I have sent have given great satisfaction, yet I very far prefer, wherever it is practicable, that all should make choice for themselves. And I should still recommend but a small number at first, not merely on account of my own convenience, owing to the demand I have; but because persons have then an opportunity, at no vast expense, of seeing whether they are the kind of animal they wished for—and as I have before said, conviction which arises from experience, is always greatly to be preferred. To me however, it has been highly gratifying to find, that in so many cases, where they have once been established, a fresh supply has so soon been wished for. I think therefore, a bull and one or two heifers might suffice in most places at first, where the trial is made; and in some, a young bull only.

Lenton, near Nottingham, 1820.

From the President of the Agricultural Society of St. Mary's County, to the Editor of the American Farmer.

MARCH 18TH, 1821.

Dear Sir,

For several years past, the farmers of this section of the state, have, during two summer months or more, been put to considerable inconvenience for the want of meal; this inconvenience is increasing, as our attention is turned to preparing our low lands and swamps for tillage.—Our springs and water courses are becoming stripped and bared of their natural covering, and but little dependance can be put in our water mills. Wind mills are not very common, and the attempts at horse mills, have thus far proved more expensive than profitable. Necessity requires that some effort should be made for our relief, and as you will see by one of our resolutions, and the enclosed letter submitted to me by Colonel Fenwick, we are in pursuit of information relative to a portable mill said to have been in very common use in France, and used with great success by Bonaparte in victualling his large armies on their long marches. Colonel Fenwick proposes that the correspondence should be published, no doubt to ascertain information that may be in the possession of some of the readers of your valuable paper—and to shew that a remedy is aimed at, to an inconvenience that may be common to others, permit me to submit his letter to

me, with his as chairman of our committee, to a gentleman in France, on the subject, to your direction; whether it shall be published now, or hereafter; with such remarks as you may choose to select, or make on their object, as set forth in this hasty scrawl.

With great respect,

I am yours,

H. G. S. KEY.

The St. Mary's County Agricultural Society, at one of their regular annual meetings at Leonard Town, Maryland, on Wednesday, the 7th March, 1821, adopted, among other proceedings, the following resolutions:—to wit:—

Resolved, That Frederick D. Stone, an honorary member from Charles, Athanasius Fenwick, Gerard N. Causin, Stephen Gough and Doctor Joseph Stone, be a committee, and are hereby instructed to prepare a circular address to the different agricultural societies in Maryland, inviting them to confer and aid in the formation of a general committee, to devise such measures as may appear best calculated to promote and protect the interest of agriculture, and that the said committee, report the result of their proceedings to this society at their next stated meeting.

Resolved, That the standing committee be authorised and requested on the part of this society, to write to any person or persons abroad to obtain information with respect to the fitness of the portable mills used in the armies of France or elsewhere, for domestic uses, and to report to this society, the result of their enquiries as soon as may be convenient thereafter.

Resolved, That Doctor Joseph Stone, Doctor John Hanson Briscoe, and John Rousby Platter, Jr. Esquires, be a committee, and are hereby instructed to procure such seeds and plants, as they may deem best adapted to this climate, and that a suitable fund be appropriated therefor.

Resolved, That the secretary of this society be authorised to purchase a bound copy of the American Farmer, and to subscribe for the succeeding numbers for the use of the society, and to draw on the treasurer for so much of the unappropriated funds as may be sufficient to defray the expense thereof—and that the AMERICAN FARMER is hereby recommended to the patronage of the members of this society.

Resolved, That the secretary be directed to transmit a copy of the aforesaid resolutions to the editor of the American Farmer for publication.

True Copy Teste,

E. J. MILLARD,

Secretary.

Cherryfields, March 18th. 1821.

DEAR SIR,—I am directed as Chairman of the Standing Committee of Correspondence of the St. Mary's County Agricultural Society, to make enquiries by letter in France concerning the portable mills used in the French armies in Spain, Russia, and elsewhere; therefore, as I know no person more likely to take the necessary trouble for me in France, than yourself, I must beg you to endeavour to obtain correct information respecting the quantity and quality of flour these mills can turn out per day. The

force used, and necessary to propel them; the nature of the materials, i. e. whether the wheels are cast iron or wood; what is the kind of stones, used in them, are they the common mill stones, or cast iron runners, and if cast iron, whether they can, as now usually cast, be used to grind Indian corn, as well as small grain, i. e. wheat, rye, &c. Whether these cast iron stones, to use the expression, do not very soon get smooth and unfit for their purpose, and what is the method and instrument for sharpening them to grind well? Whether it is practicable to obtain one of these mills complete and ready for work from Bordeaux, or any other port in France; what would be the cost of such a mill complete; what the probable cost of transportation, the moving on ship board from the manufacturer, and the freight estimated; and all other information respecting the method of working them, or moving them that may be useful.

The springs and streams in this county are becoming every year less abundant, and in dry seasons the inconvenience, already very great, is increasing from the stoppage of water mills. And this it is believed, is very generally the case, throughout the greater part of the United States. Windmills are a bad reliance in the interior of woody settlements. So that in case the portable mills, or by whatever name they may be designated in France, are better in their construction from any cause, whether arising from the application of the power, compactness of form, facility of transportation, or for any other reason than the horse mills already known and used in this country, they would find an extensive sale here, and the profit, it is reasonable to suppose would be sufficient to induce a manufacturer of them to attempt to bring them into use in this country, by showing all their advantages and superiority over the common horse mills, and by transporting them from Europe ready made, or having them made in this country, which ever was cheapest, and disposing of them where they are wanted. Some gentlemen of our society, and myself intend, in the event of receiving a satisfactory answer to this letter, immediately to set about obtaining one; and we rely upon your instrumentality, or that of your father.

Your's &c.

ATHANASIOS FENWICK.

To the Editor of the American Farmer.

On making clover tea and flaxseed jelly, and on the use of them in rearing calves

BAIGTON, March 10th, 1821.

JOHN S. SKINNER, Esq.

Dear Sir,—I most cheerfully comply with your request, by stating my mode of preparing FLAXSEED JELLY and CLOVER TEA, viz.—take one part of flaxseed and five or six parts of water; let it soak from twelve to forty-eight hours—according to the temperature of the weather; then boil for a quarter of an hour, stirring it to prevent burning—keep it in a cool place, and not more than will suffice for a week should be made at a time, in warm weather.

Clover Tea. Cut the best cured clover hay—about as fine as common straw-chaff; press it into a kettle and fill up with water—cover and boil half an hour—If soaked six or twelve hours, less boiling will answer. Express as much of the liquor as possible, and the residuum will be eaten greedily by store swine, if mixed with their swill. Unless the clover was cured with salt, (a method I always practice) some should be put into

the kettle, which may sometimes require to be filled up with water.

The two Holderness calves, which I sold and shipped to you in December last, were weaned when three weeks old, on flaxseed jelly and clover tea—new milk was given them till they had learned to drink—as much jelly was mixed with the tea as made it of the consistence of rich new milk, and occasionally skimmed milk was put with it; they had as much as they would drink, night and morning—and at noon a feed of clover-hay cut into chaff, which they cat voraciously. They were confined in a dark stable, well ventilated and littered with clean straw—fine red top hay was always in the rack—Rosen (second creep) would have been better. These calves only five months old, when shipped, were in high condition, and their arrival “in tolerable order,” after a passage of twenty-two days in a most inclement season, on the deck of a small coaster, denotes a *hardihood* which I believe they would not have exhibited, if reared in the common manner, although that property is characteristic of the breed. Indeed, I view it as a cardinal point, in the management of young calves, to keep them confined, and entirely from grass the first season—even on the score of economy, especially if fences are to be erected; for it cannot be expected they will do well unless there is a continual flush of feed, more of which is destroyed than they consume. By running at large, besides being exposed to a scorching sun, and to be tormented by insects, they often eat, and if they have access to water, drink to such excess, that they *scour*, become *pot-bellied*, and that desirable point, a *straight barrel*, can seldom be restored. By confining them, winter will make no change, and of course it will be less material at what season they are dropped.

It would be advisable, generally, to seald a little meal, and mix it with the cut clover, but in the instance above related, I wished to try the effect without.

I remain,

Very truly, yours
S. W. POMEROY.

PISE,

Or the Art of Building strong and durable Walls, to the Height of several Stories, with nothing but Earth, or the most common Materials. Drawn up and presented to the Board of Agriculture, by Henry Holland, Esq.

[Continued from No. 1, page 4, volume III.]

Of Pise and its Origin.

CHAPTER II.

Of the implements necessary for building in Pise.

Besides the common tools, such as spades, trowels, baskets, watering pots, a plumb rule, a hatchet, hammer and nails, the only implements required for building in pise are a mould and a rammer, of which it will be necessary to give a particular description.

The following is a list of their several parts, as they are delineated in Plates I. II. and III.

PLATE I.

- Fig. 1 One side of the mould, seen on the outside.
- 2 The other side of the mould, seen within side.
- 3 Head of the mould, seen without.
- 4 The other face, seen within.
- 5 Wedges.
- 6 The round stick, called the wall-gage.

PLATE II.

- 7 Posts to be set upright, but seen flatwise, with its tenon.
- 8 The same on its back, also with its tenon.
- 9 Joists in which the mortices are cut, seen flat.
- 10 The same, with the side and bottom seen.
- 11 A mould put together, in which are seen all the parts above mentioned, and also a small rope.

PLATE III.

- 12 The rammer (or *piseir*) for ramming the earth in the mould.
- 13 The same on a large scale, seen on its side.
- 14 Plan of that instrument, seen on the top.

For the construction of the mould, take several

planks, each ten feet long, of light wood, in order that the mould may be easy to handle; deal is the best as being least liable to warp, to prevent which the boards should be straight, sound, well seasoned, and with as few knots as possible. Let them be ploughed and tongued, and planed on both sides. Of these planks, fastened together with four strong ledges on each side, the mould must be made, two feet nine inches in height; and two handles should be fixed in each side, see figure 1 and 2, Plate I. The head of the mould which serves to form the angles of the building, must be made of two narrow pieces of wood, ploughed, and tongued, and ledged; its breadth eighteen inches, and height three feet; and it should be planed on both sides. See Plate I. figure 3 and 4, where it will be remarked, that this part of the mould diminishes gradually to the top, in order that the wall may be made to diminish in the same degree.

All the boards and ledges here mentioned must be, after they are planed, something more than one inch thick.

The wedges, Plate I. figure 5, must be an inch thick, and from eight to twelve inches high; and as to the gage, figure 6, it must be cut in length equal to the thickness of the wall you mean to erect.

The eight ledges that are necessary to secure the two large sides of the mould, serve also to receive eight upright posts, standing on four joists.

The posts, Plate II. figure 7 and 8, may be made either of wood sawed square, or of round wood of any kind; so that one may use indifferently the ends of rafters, joists, small trees, or their branches. These posts are to exceed the height of the mould by eighteen inches; they must therefore be about five feet

high, including their tenons (which should be six inches long,) and three by four inches. That part which is to bear against the ledges of the mould must be made flat and straight, the other sides need not be worked with so much truth.

The joists may be of the same sort of stuff, 3 feet 6 inches long, 3½ feet broad, and three inches thick. On the broad part must be made the two mortises (as marked plate II. figure 9) ten inches and a half long, and rather more than an inch wide, and at each end three inches and a half must be left beyond the mortises, so that the interval between them will be fourteen inches. These dimensions must be observed, in order that the two sides of the mould may incline towards each other, and the thickness of the wall be gradually diminished, till it is reduced to fourteen inches at the roof.

The dimensions for the joists then are as follow:—

The two ends, remaining beyond the mortises, three inches and a half each	ft. inch.
The two mortises, ten inches and a half each	0 7
The interval between the mortises	1 9
	1 2
Total length of the joist	3 6

The most simple things are sometimes difficult to be understood without being seen: an elevation therefore of this whole machine has been annexed, plate II. figure 11. and the following is a list of its several parts, enumerated in the same order that the workmen must follow when they erect the mould.

Elevation of the Mould on a Wall.

A, a stone foundation eighteen inches thick, on which a wall of earth is to be raised.

B, joists placed across the foundation wall.
CC, the two sides of the mould, including between them three inches of the foundation wall.

DD, the two upright posts, the tenons of which fit into the mortises of the joists

E, wall gage, which fixes the width of the mould at the top, and which is shorter than the thickness of the wall at bottom, to regulate the diminution of the wall to be erected.

F, a small cord something less than half an inch diameter, making several turns round the posts.

G, a stick, which by being wound round, fastens the cord, and holds the posts tight together.

HH, wedges which enter into the mortises in the joists, and keep the posts and the mould firmly fixed against the wall.

Such is the process of erecting the mould; a contrary order must be observed in taking it to pieces. The rope must be loosened, the wedges taken out, and the posts, the mould, and the joists removed, in order to refix the whole again.

The instrument with which the earth is rammed into the mould, is a tool of the greatest consequence, on which the firmness and durability, in short the perfection, of the work depends. It is called a *pisoir*, or rammer; and though it may appear very easy to make it, more difficulty will be found in the execution than is at first apprehended. A better idea of its construction may be formed by examining Plate III. figure 12, 13, and 14, in which it is delineated, better than any words can convey. It should be made of hard wood, either ash, oak, beech, walnut, &c. or what is preferable, the roots of either of them.

(To be continued.)

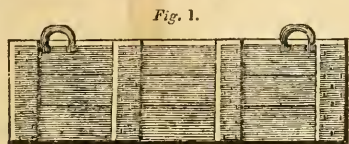


Fig. 6.



Fig. 5.

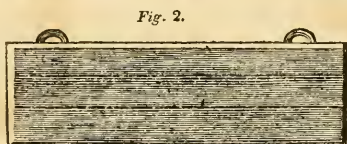
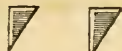


Fig. 2.



Fig. 4.



Fig. 3.

PLATE I.

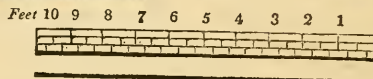


PLATE II.

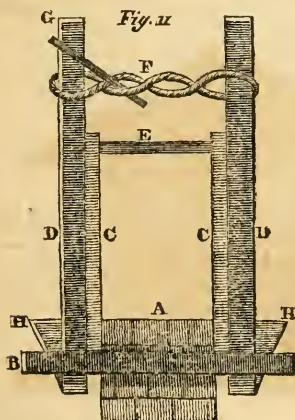


Fig. 11.

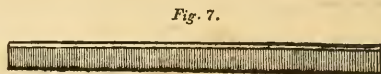


Fig. 7.

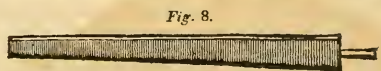


Fig. 8.

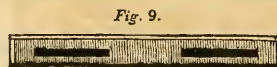


Fig. 9.



Fig. 10.

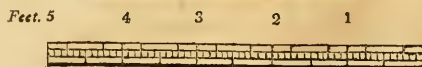


PLATE III.

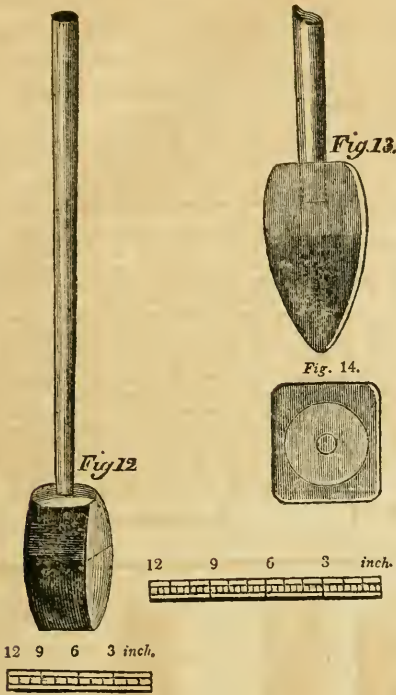


PLATE IV.

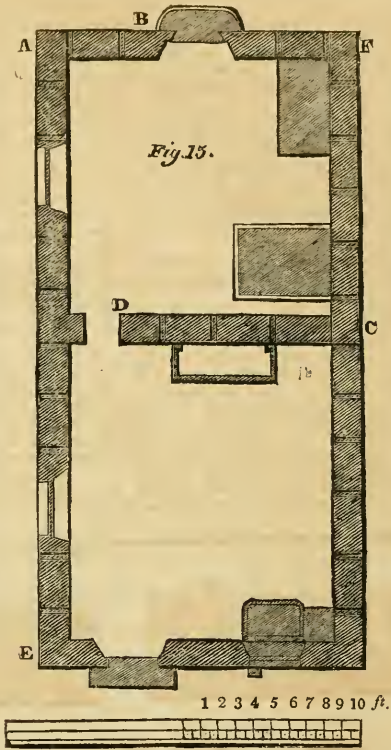
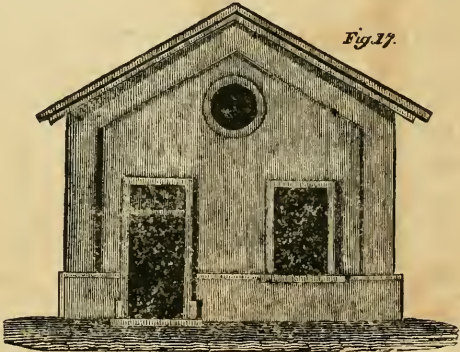
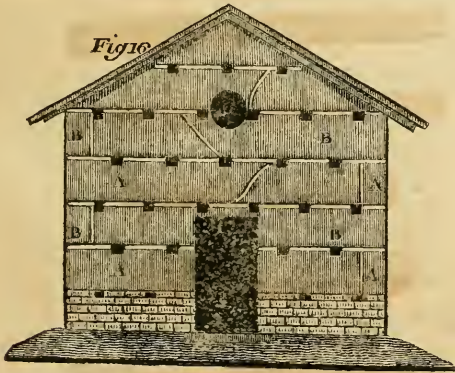


PLATE V.



To the Editor of the American Farmer.

Baltimore, March 30, 1821.

In your paper of this day, is an article on the *Pisé*, manner of building houses with mud walls; but the author is incorrect in supposing that this manner of building, was little known in France, except in the Province of Lyons. The following extract is from Young's tour through France in the year 1787.

"In this country (between Cherbourg and Rennes) they build the best mud houses and barns I ever saw; excellent habitations, even of three stories, and all of mud, with considerable barns and other offices. The earth (the best for the purpose is a rich brown loam) is well kneaded with straw; and being spread about four inches thick on the ground, is cut in squares of nine inches, and these are taken with a shovel and tossed to the man on the wall who builds it; and the wall built, as in Ireland, in layers, each three feet high, that it may dry before they advance. The thickness about two feet. They make them project about an inch, which they cut off layer by layer perfectly smooth. If they had the English way of white washing, they would look as well as our lath and plaster, and are much more durable. In good houses the doors and windows are in stone work."

—So much from Young.

A building of two stories was put up in this city by the present Mr. S. Chase at his late residence, seven or eight years ago, and now appears to be very firm, and being white washed has a good appearance. One precaution is necessary which is to raise the foundation above ground, or carefully to raise the ground round the building so as to prevent the water from laying against the walls. It is believed that houses built in this way, and plastered inside will be very comfortable and healthy; but it will be well to give the eaves a good projection, particularly to the north east, to keep the walls dry. The name is from a town in Italy, Pisa, where these kind of buildings have long been known.

A SUBSCRIBER.

RURAL ECONOMY—No. III.

FOR THE AMERICAN FARMER.

On the Cultivation of Indian Corn.

Before entering the wide field of Agricultural investigation, for fear that I may not have been clearly understood, I must beg leave to say yet a little more, on the subject of deep ploughing. The plan mentioned in my last, of shallow ploughing, was only recommended in the event that the coultre should be admitted to be an indispensable requisite to good cultivation. If the use of this instrument be rejected as nugatory and chimerical, I should by all means prefer deep ploughing, to the miserable habit of scratching. On a soil positively barren at the surface, nothing can be lost, and much may be gained, by turning it under from seven to twelve inches. On ground of this description, even if the coultre should be used, it would probably be beneficial to exchange the vile and useless dirt on the top, for some that has never felt the cheering influence of the sun. It was particularly for such land, as Farmers term, "in good Heart," that the plan designated, was supposed to be a good one. Mr. John Binns, in an Agricultural pamphlet on the subject of "Deep Ploughing and the Use of Plaster," recommends that the land be ploughed nine or ten inches deep, once only in ten or a dozen years, and during the inter-mediate time, worked shallow. In this, we pretty much

agree. It was also stated, that the sun and atmosphere did not improve the ground exposed to their influence. This must be understood with some limitation. If the earth be kept bare, so far from improving, they injure it immensely; if covered, they certainly improve, though it is in an indirect way. They promote the growth of vegetation, and this in turn, by the united effect of covering and decomposition, imparts fertility to the soil. By the terms, "sun, air, and moisture," without going into a chemical analysis of water, air, light, and caloric, I mean only those natural elements, (if they be entitled to that appellation) as they are known to predominate in our atmosphere. In support of the opinion, that the growth of grass does not in the abstract injure that of corn, after adverting to one more fact, I will have done. That any kind of vegetation, if the whole be returned, or, what amounts to the same thing, if no part be ever taken away, has a direct tendency to improve the soil, is an axiom, the truth of which cannot be doubted—it not only improves eventually, but simultaneously with its growth. If vegetation improve a field fenced off exclusively for its production, I can divine no possible cause why it should not, to an equal extent, improve a corn field. Now, if rich land be better adapted to the growth of corn, than poor, it would really be "passing strange," if the addition of the very thing calculated to give the soil the desirable requisite, should be pernicious to the crop. It is not reasonable—it cannot be true. I admit that grass injures the growth of small grain; not that it appropriates to its own use any food necessary for the crop, but being indigenous and stronger, it denies to the weak stranger a foothold—sufficient space to stand on. But with corn the case is quite different. An army of grenadiers, attached by patriotism to its home—to the endeared land of its nativity, is invincible. Indian corn is the most vigorous plant in the natural world: after it shall have become knee-high, no wet destroys—no drought kills—no grass can injure it. I now proceed to the main subject of discussion. The first thing necessary, on opening an Agricultural campaign, is to have a due proportion between the means and the end, in view. A sufficient quantity of labourers, horses, oxen, and farming implements of the most approved construction, should be procured, to work the land in the best possible manner; or if these be unavoidably limited, let the arable land be reduced in extent. Every thing should be in unison—in tune; this can be effected as easily by lowering one key, as by raising another. The difference in the labour, requisite for the cultivation of different soils, is so great, that it is impossible to give any general criterion. In this every farmer must judge for himself. Few persons are so devoid of common discernment, as not to be able easily to discriminate between good and bad cultivation; but at the same time, a very small number have resolution enough to take the right road, labouring generally under the mistaken notion, that it is the most intricate and difficult to travel. To make poor land rich, it must be admitted, is at all times an expensive and difficult business—it furthermore

is a work of time. Although apparently but a simple business, the management of a landed estate requires much more judgment and personal attention, than is generally supposed. Many of our very best cultivators are, as regards the minutiae of agricultural policy, most wretched financiers—they sink under the weight of such pecuniary pressure, as the more steady step of far less able men, may have taught them to avoid—they "kiss the calf skin," and like a gleaming meteor of the night, vanish in a twinkling, and are gone for ever. Hence the great prejudice in the minds of the lower classes of society, against the most improved systems of cultivation. No prudent man can, in the absence of information as to the cause, have any predilection for the measures of another, in whose front ruin appears in staring capitals. The truth is, that most of us who resort to theory at all, are too apt to run into extremes—to be led on by the delusive phantoms of a sanguine imagination, until we get entangled in such an intricate maze, that even the clue of Ariadne would hardly be sufficient to extricate us. Experiments in farming are highly useful, but their mere plausibility, should never induce us to leap the barriers of pecuniary ability. Most farms in this country are too large, and the resources of their proprietors too limited, to furnish the necessary means, either to improve it properly for eventual benefit, or to avail themselves of that immediate source of profit, which even an impoverished soil might afford. If, as was observed before, we cannot procure force for the cultivation of a large space, let us tend less—we can fence off the superfluous land for pasture, which may remain permanently for that use. If there be more land than may be deemed sufficient for the ordinary quantity of plantation stock, so much the better—let us procure and raise sheep. This kind of stock is of late held by many in such estimation, as to be honoured with the appellation of "truly national animals." During the continuance of the present depressed market for agricultural product, the rearing of sheep is an object well worthy of attention. Independently of the carcass, the wool alone would be a considerable source of revenue. One thing I would particularly recommend is, never to graze too close, and if timber be not scarce, to have many subdivisions, so as to change the cattle frequently from one enclosure to another. By this plan, the grass grows much faster, and the stock thrive better. Though the grass in all be abundant, a fresh pasture is always most relished. A standing pasture would afford still another benefit; it would enable us to avoid the necessity of grazing the arable fields. It is almost a universal practice amongst farmers, wherever I have been, to keep too many cattle. The evil genius to agricultural prosperity, could not possibly have devised a plan more subservient to his views, than this. Independently of the injury done by devouring every sprig of grass which a beggarly soil may throw up for its own use, an additional mischief, it is believed, is done by treading the ground so hard, as to prevent both the absorption of water, and the germination of any vegetable substance, which otherwise might be produced. And besides, it

requires double the force to plough it in any way, and all the labour in the world, would be insufficient to make it in due time a fit receptacle for the seed of the husbandman. The only practicable mode of improving a large quantity of land, is to lay it down either in artificial or natural grass, and to defend it at the same time with maternal fidelity, both from the tooth and from the hoof. Manure or vegetable substances decomposed in the farm-yard, after all the management for its accumulation of which man is capable, can at last only be considered an auxiliary too limited in power, to resuscitate an extended waste of dead earth. But on this subject I shall deliver my sentiments at large hereafter. Farming and grazing should never, except on lands of the first quality, be carried on together, and even then, the one should be made in a great degree subservient to the other. If, in that case, the fattening of stock for market should be preferred, no more grain ought to be raised than will be sufficient for their support during the winter and spring. Upon poor or unimproved lands, grazing never can be profitable, of consequence, never desirable. Upon such farms, no more stock should be kept, without the advantage of a standing pasture, than is absolutely necessary for the comfortable subsistence of the family. In the selection of crops, we should choose such as are suitable to the climate, and which, after a proper estimate of the expense of cultivation and hauling to market, produce the most clear profit. We should not aim at too many different kinds of crops, for though there be a considerable affinity in the necessary information for the management of different plants, the adage holds equally good in this, as in other pursuits much more dissimilar, that a "jack of all trades, is good at none." Many farmers raise, or rather attempt to raise for sale, corn, wheat, tobacco, oats, potatoes, turnips, &c. under the mistaken notion, that if one miss, another will hit; when in fact, all are much more likely to fail from neglect, a cause more certain to exist, than if their attention had been paid exclusively to two or three staples. Wheat and Indian corn, under judicious management, will not miscarry more than once in twenty years. We are too apt to attribute to unpropitious seasons, failures, which should more properly be laid to the door of inattention and mismanagement. That some seasons are better than others, cannot be denied, but few are so unfavourable as to "deny the labourer his hire," and none, in this country, so much so as to produce a famine. A good cultivator never complains; a bad one is never satisfied.—a land is good—no season suits—no exertion ever succeeds. The crops which I would particularly recommend for this section of the country, are Indian corn and wheat. I shall confine myself for the present to the cultivation of the former. So much has been very justly said about the usefulness of this plant, as food for man, beast, and earth, that I shall dispense with that part of the subject, which might be deemed supererogatory; and taking it for granted, that it is desired by all to raise it, who can, shall proceed to give some directions as to the method of its culture.

First and foremost, the ground should be broke up, either in the fall, winter, or spring, as deep as three good horses or mules to a plough can turn it. From the time in the spring when the land becomes in order, until the middle or last of April, the whole power of both horses and oxen, the labour-saving machinery of agriculture, should be devoted unremittingly and exclusively to this work. Then are the services—the real value of these noble animals most appreciated—then might we exclaim, with almost as much reason, as did the third Richard of England, "a kingdom for a horse!" The ox being best fitted for slow draught, will be used to most advantage at the barrow, of which a sufficient number should be had, as to level the ground well, as fast as it is ploughed. This is of great importance, as by stopping immediately the interstices between the furrows, and by turning over such sods as may have been occasionally left on edge by the plough, (which can be more easily done immediately, than after they shall have settled) it smotheres the grass, and effectually checks its immediate growth. This is most particularly desirable where there is much blue grass, or a turf of any sort, for although in a former number I advised that the growth of spontaneous vegetation should be unmolested, this course was only to commence after the corn should have taken complete possession of its inheritance, and have acquired strength and size sufficient to shift for itself. After the ground shall have been prepared in the manner mentioned above, it should be lightly marked off with a shovel plough, in squares of from four to five feet, at the option of the proprietor. Four or five grains should be dropped in each hill, and it planted early in the season, covered about one inch deep, if late, two inches. This may be done with a common hilling hoe, or if the ground be very light, with the foot. It is always best to have in each hill a good many spare seed, for they not only insure a plenty of plants, but if perchance the ground should become baked, as is often the case, from hard rains, sprouting simultaneously, they push through the earth with more force, and are consequently stronger and more thrifty. Where many plants are in each hill, the operation of thinning, which should be done in moist weather, when they are about six inches high, is also of great service, as by drawing out the superfluous shoots, the earth is much lightened round the roots of the remainder. Two stalks in a hill are generally enough, if the ground be rich—if very poor, one will be quite sufficient. Corn requires more air than any crop whatever—as a proof of this, were we to sow it broad cast upon land of Egyptian fertility for twenty feet deep, no grain would probably be made. This, I imagine, proceeds from its great height, and the distance the ears are placed from the top; whereas the heads of wheat or other small grain, are exposed equally and directly to the influence of both sun and atmosphere. On this subject, I think Mr. "Simple's" suggestion of laying the rows off due north and south, well worthy of attention. As soon as the corn gets well up, and before it is thinned, it should be narrowed, a boy following behind to disengage such plants as may have been cover-

ed up by the operation. The thinning should be repeated until the stalks get so high as to prevent its passing over without breaking them. This instrument must then be laid aside, and the coulter used as described in No. II. of this publication—passing three or four times between each row; and should time permit, this working may be repeated the contrary way. Harvest will now have approached, just before which, if the antipathy to grass be not abated, the shovel plough, or an equally efficacious and much more expeditious instrument, (the cultivator) may be run once over the field—this will bestow a momentary quietus on all vegetation which it may be thought desirable to destroy. I do, however, particularly conjure all farmers to omit this last working, which I conceive to be worse than useless, on a small part of their fields, and they will then be enabled to judge for themselves. I forgot to mention in its proper place, that in the early period of the growth of corn, the ground should be loosened with the hoe immediately around the stalks, but not killed, and all the grass carefully eradicated; otherwise this young Hercules might be cramped in the cradle for want of elbow room. At harvest all cultivation should cease; if the corn be well grown, any further working so far from being beneficial, would be very injurious. The balance may now be left with perfect safety to the munificence of Heaven. Business in abundance will at this time be at hand, to engage the attention of the industrious husbandman. It now remains, only to say how the crop should be saved. As soon as the blades are ripe or fit to pull, which is generally between the first and middle of September, let the whole be chopped down close to the ground with knives made out of old scythes, and which, handle and all, should be about two feet long. As the corn is cut, it may be thrown into piles in the same manner that tops are generally placed. After laying in this situation about two days, or till the husks and blades shall have become wilted, it should be put up carefully in tolerable large stacks, with the butts on the ground, and a good band round the top to prevent the ingress of water. In this situation it should remain about a month to cure—till after the wheat is sowed, or till it shall be convenient to haul it to the barn to bask. If it should be found impracticable to carry it away in time, it may be husked on the spot—the corn housed, and the offal restacked on the same ground it is first occupied. This may be taken away during the winter, when the earth is covered with snow or hard frozen, when it may be required as food for cattle, or as convenience may dictate. The plan here recommended is preferable to the old way, not only as regards the quantity and quality of provender saved, but also for the difference of labour in its favour and the better preparation of the ground for the succeeding crop. If I recollect rightly, the enlightened editor of "Arator" recommends that the stalks be cut and hauled to the farm-yard not until the blades and tops shall have been secured and the corn gathered in. This could not be effected till some time in the winter; consequently not until the stalks would have lost much of that saccharine matter, so very nutritious, which they are known when

green or just ripe, to contain in such abundance. This plan must have proceeded from the supposition that it is necessary for the grain to become completely dry, before it is gathered. If the reasoning of Mr. Brush, that it is injurious for any grain to become "dead ripe" before it is cut, be correct, this opinion of Arator's most happily for mankind falls to the ground. As I have not the book now by me, it is very possible I may have erred in attributing this sentiment to its author; but that is a matter of very little importance, as the circumstance has only been mentioned, to show that if such an opinion be now entertained by any, it is erroneous. We have it in our power to improve on the excellent original, by sweeping the whole platter at once, just at the "nick of time"—at the very moment, when the grain, stalks, blades, husks and tops are in the best attainable state of perfection. Many farmers object to the modern system of procedure, from the impression that it requires so much labour, as to be next to an impossibility to get the corn stacked in time to sow wheat. A contrast with the customary way of management, will show how very fallacious is this idea. Ten good hands will cut down very easily, fifty acres of heavy corn, in a day; and the same force will stack it in about three days—this force will consequently clean a field of one hundred acres in eight days;—a shorter time, I will venture to assert, than it would take to secure the blades and tops alone. But let the whole of the old system pass in review. The first operation on the catalogue, is to pull the blades, and place them between the stalks to cure; next, to bind and carry them out, then to cut the tops and throw them into heaps; again to tie them up and set them on end, and afterwards when the time of sowing wheat comes on, to carry them to the turning rows, or head lands, to be subsequently hauled to the foddler house: so much for the offal that it is deemed necessary to save. Next you have to go over the whole field, to pull the corn, and afterwards to throw it into the wagon—and in conclusion, the same ground is again to be walked over in the latter part of winter, or commencement of spring, to cut down the stalks. Here we have the formidable number of eight different times to go over one field to secure a crop after the labour of its cultivation shall have been over. And after all this work, the stalks, the most important part, except the grain, are left to waste in "the desert air"! Severely the joints of poor labourers must ache, and the mind sicken, at every repetition, of such useless and unprofitable labour. In treating the proposed subject of the present essay, I have been led on incidentally to the consideration of many other things with which it was not immediately connected. My good intentions I hope will be a sufficient apology to a generous and enlightened public, for such a desultory investigation of topics, deemed of vital importance to us all. In a future paper, we shall endeavour to impart some information on manuring and the cultivation of wheat.

RICHARD B. BUCKNER.

Vint-Hill, Fauquier County, Va. }
23d March, 1821. }

For the American Farmer.

I have read an account of a tree on an elevated point in the Island of Ferro, (one of the Canaries) which is said to supply the inhabitants with fresh water, daily dripping from its leaves. This account, whether true or false, leads to some reflections which may be useful.—General Ogle, of Somerset county, Pennsylvania, formerly a member of Congress, informed me that at his first settlement in that county, rain was much more frequent and abundant, than in succeeding years, after the country had been more extensively cleared. The Islands of Bermuda, are now more frequently afflicted with severe droughts, than for perhaps a century after their first discovery and settlement. The hills were formerly covered with cedars—the demand for that valuable timber for ship-building has unclothed the hills. In 1791, fresh water was sold—and the cattle suffered. Valuable products, such as pine apples, &c. were formerly produced, but are now scarcely known.

If a ridge of high mountains was placed across the desert of Zaara, that desert would, I believe, in a given time, become a fruitful field. Without moisture, agricultural labour is lost. A French proverb says, "point de Peau, point du jardin"—no water, no garden. The extensive tracts in the western parts of the vale of Mississippi, would be more barren than they now are, if the snowy mountains were removed; and if the Alleghenies also were removed, the Mississippi and the Atlantic rivers would, I think, be greatly diminished.

Your useful work, the *American Farmer*, admits not men's speculation, which has no valuable result. My object, therefore, is to suggest to your agricultural friends, the importance of preserving the trees on the highest parts of their farms. The theory of electricity, I presume favours the suggestion. Our colleges and learned schools, have not yet ascertained what vapour is, or how it is formed. The electric fluid is extensively, and perhaps universally diffused. Every point of a leaf and every spike of grass, is probably a conductor of this fluid. Perhaps pointed metallic rods erected on hills or plains, would increase the quantity of rain by decomposing vapour.—In thunder storms, it is well known that the quantity of falling rain, is increased by every flash or explosion. I consider the farmers of our country, as better practical natural philosophers than the gentlemen of the learned professions; they will judge whether this communication is worth publication.

Very respectfully,

Your's,

JOSIAH MEIGS.

Washington City, April 2, 1821.

EXTIRPATION OF SORREL.

In some experiments that I have made to extirpate sorrel, it has appeared to me that plaster of paris was effectual for that purpose. The oxalic acid of the sorrel, I think unites with the lime of the plaster, and forms oxalate of lime, whilst the sulphuric acid of the plaster unites with the pot ash set free from the oxalic acid, and forms sulphate of pot ash. The plaster in these experiments was used copiously.

T. M.

THE FARMER.

BALTIMORE, FRIDAY, APRIL 6th, 1821.

A special meeting of the Maryland Agricultural Society is requested on Tuesday next, 10th of April, at 10 o'clock, A. M. at the Office of the Editor of the *American Farmer*, over the Post-Office.

R. SMITH, President.

March 30, 1821.

ERRATUM.

In the last piece, No. 1, of the 3d volume, signed S. V. S. and 8th line, after the word much, add, of the compound.

Baltimore, April 6, 1821.

PRICES CURRENT.

Four, from the wagons, \$3 63½—Whiskey, from 22 cts per gallon—Hay, per ton \$16—Straw, do. \$9—Wheat 65 to 68 cents—Barley, 45 to 50—Wheat Oats, 25 cents—Potato do. for seed, 45 cents—Corn, white, 23 to 24—Yellow, 26—Cold fish, per quintal, wholesale \$3, retail do. \$4—New England Beans, per bushel, \$1 12½—do. Peas, 75 cts—Ground Plaster per ton 8 50, per barrel, \$1 45, per bushel, 35, in the stone per ton, \$6 50—New-Orleans Sugar, \$8 75 to 10—Muscovado, do. \$7 50 to 9 25—American White Lead, \$12 50—Ground, do. \$13 a 14—Linseed Oil, 75 cts—Feathers, 40 to 45 cts.—N. E. Potatoes, retail 62½ cts. pr. bu.—Live Stock 5 to \$6 c.—Beef, pri me pieces, 8 to 10 cts.—corn Beef, 7 cts—Mutton, 8 to 10 cts—Hams, 10 to 12 cts—Middlings, 8 to 10 cts—Butter, 20 to 25 cts—Eggs, 25 cts—Cheese, 8 to 10 cts. per lb—Tar, \$1 75—Soft Turpentine, \$2—Pitch, \$2½—Rosin, common 1½—bright do. \$3 per barrel—Farnish, 25 cts.—Spirits turpentine, 33 cts. per gal.—Cotton, good Upland, 13 to 15 cts. per lb—Rice, 3 a 3½ cts.—ship and flooring Plank, \$25 to 27. Shingles, best 6 a 7 cts—com, \$3 a 4½ p. M.—Oak, wood, \$4 50—Hickory, \$5 per cord—Clover, seed \$6—Am. Orchard, grass do. \$4—Eng. do. do. or Cocksfoot, do. \$8—Herds, do. \$3—Sainfoin, per bushel \$8—Millet, do. \$2—Luccern, 62 cents per lb—Sweet Scented Vernal grass, 150 cents—Trefail, 50 cents per pound—Ruta Raga, 50 cents—Mangle Hurdle, 175 cents pound—Cabbage seed, 2 to \$6 per pound—Cauliflower, 75 to 100 cts. per doz.—spring Tares, \$8 per bushel—Peas, 25 to 37½ cts. per quart—short orange Carrot, 12½ cts.—Parsnips, 12½ cts—Lettuce, 25 cents—Radish, 12½ to 20 cts—Beet 20 cts—Brocole, 31 to 100 cts—Cucumber, 37 to 50 cts per oz.—Turnip seed, 50 to 125 cts per lb.—Chicory, 75 cents per pound—Rape, 12½ cents do—large Amsterdam Cabbage for cattle, 25 cents per oz.—Irish Furz or Wines, \$2 per pound—Bush and Pall Beans, 63 to 25 cents per quart—New York premium Ploughs of sizes from 7 to 16—Box Churns, 8 to \$9—Drill Machines, 10 to \$11—Benett's broad cast Machine for sowing Clover, Turnip, and Grass Seeds, \$18—Expanding Cultivators, \$15—Post Augurs, 5 to \$9—Flexible Tubes, to relieve cattle when hoven or choked, with gags, the pair \$5—Corn Shellers, 20 to \$25—Turnip Scoops, 50 cents each.—large 2 horse Connecticut Ploughs, iron mould boards, \$11—do. do. wood, 10\$, small Ploughs, do. \$7 50.

A few hids Virginia Tobacco, sold the present week at 6 and \$6 50.—We hear of no sales of Maryland since last report.

AGRICULTURAL SEEDS, &c.

JOSEPH P. CASEY, Seedsman, &c. No. 2, Hanover-street, next to Barnum's Hotel, has received per the Belvidera, a supply of TRUE MARBLD MANGLE WHEEL, Lucern Chicory, RUTA Raga, Sowing-rape, FINT-PEAS, Spring Vetches, Heligoland Beans, White Poppy, Everlasting Pea, 1660 headed Cabbage, Renolds' Turnip, Rooted do. Monstrous do. Perennial Flax, Dublin Solid Celery, Large Cork Asparagus, Early Strawberry, and June Peas, and a superb collection of FLOWER SEEDS; eight varieties of JAPAN ROSE TREES, Grape Vines, raised from the single eye or bud, &c. &c.

CASEY has for sale, Seeds from the northern states—Shakers Seeds, Wethersfield and Mammoth Onion Seeds, Coffee Beans, EARLY CORN, Planting Onions—a variety of Garden Tools, Agricultural Implements, Books on gardening, botany and agriculture, flower Roots, fit to plant at this season, Rose Trees, and different other Plants in bloom. All orders punctually attended to.

N. B.—300 bushels Potatoe Seed Oats just arrived from Ireland.

April 3.

Printed every Friday at \$4 per annum, for JOHN S. SKINNER, Editor, by JOSEPH ROBINSON, at the N. W. corner of Market and Belvidere-streets, Baltimore, where every description of Book and Job Printing is executed—Orders from a distance for Printing and Binding, with proper directions, promptly attended to.

A MERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL. III.

BALTIMORE, FRIDAY, APRIL 13, 1821.

NUM. 3.

AGRICULTURE.

FROM THE NATIONAL RECORDER.

Remarks on the late Cattle Procession in Philadelphia, with Directions how to effectually promote the Breed of Cattle. By James Mease, M. D. Vice President of the Philadelphia Society for promoting Agriculture.

Read before the Society on the 20th March, 1821, and ordered to be published in the National Recorder.

Now that the recent "Splendid Show" of fat cattle has passed,* it may be well to reflect upon the exhibition; to examine the justness of the claims it had to the imposing title of its alleged object, and utility; to ask ourselves, whether that object and that end will be in the least promoted by such a procedure first and last, as we have witnessed; and whether there are not other measures more calculated to attain both, and at a much cheaper rate, than those which have been adopted.

The exhibition was entitled "*Pennsylvania against the World*;" 65 oxen, 4 hogs, 19 sheep, ten kids, 3 deer, 4 bears, had been kept for different periods at an extra allowance of pasture and short feed, for the purpose of seeing how much flesh and fat could be put on their bodies, and how much fat be made to cover their intestines. The object as alleged, is the "improving the breed of cattle." Let us reflect a moment, and ask how such an end can be obtained by the measures pursued.

It is apprehended, that it will not be difficult to prove, that the desirable objects contemplated will not be effected; that the zeal and spirit of the concerned have been most egregiously misapplied; that the exhibition was calculated to keep up a bad fashion and ruinous practice among graziers, and that a more rational plan must be adopted before the desirable end of the "improvement of the breed of cattle," can be effected.

The same principles which are so well established with regard to the human race, apply with full force to the brute creation. How then, it may be asked, is the form of mankind improved? Is it by long continued overfeeding them, when in the decline of life, to clothe their bodies and line their interiors with loads of fat? What would be thought of a people who avowed that such means were the best to mend the shapes of a badly formed community? And yet the fashionable practice among graziers with their cattle is not less absurd. Excluding the bears, deer and kids from consideration, let us confine our remarks to cattle, sheep and hogs. A number of large framed oxen with capacious bodies, some of them eight or nine years old, are selected, and after the fullest allowance of the finest pasture, either hired, or given to them to the exclusion of the rest of the stock on the farm, are put up in the winter, and fed at regular hours with as much Indian corn meal, ground oats, potatoes, pumpkins and hay, as they can possibly digest, and until they groan from the oppression they suffer, and their hides carded and rubbed with as much attention as is bestowed upon a southern race horse. Sometimes corn meal and the other articles are given to the animal while at pasture. From one to even four years of such treatment are required to bring the animal to the "sticking point." Sheep of the New Leicester or Bakewell breed are also selected, for similar experiments. This breed,

from its admirable form, is known to take on fat with great ease, and individuals of it, with good pasture, will always in one season become as fat as any reasonable man ought to desire; but by the treatment mentioned they are so overloaded with fat as scarcely to be eatable. The same remark is applicable to hogs, some of which, upon the late occasion, were absolutely blind from the projection of fat over their eyes, and required to be raised from their beds of straw to take food. None of them could walk without difficulty. Let us ask how these operations will improve the breed of cattle? Did any of these crammed beasts leave their progeny behind them? The absurdity of naming the object to be effected by this excessive feeding, "the improvement of the breed of cattle," is evident. Where, moreover, is the utility of such overfeeding? If it be said that it furnishes a market for grain and hay, why not apply the extra feed consumed by the slow cattle, sheep and hogs, to the fattening thrice the number of head, all of which by it would have been turned off in as excellent order as is required for human stomachs of ordinary powers of digestion. The difficulty is to find lean enough in the cattle and sheep to eat: as to the hogs, nineteen-twentieths of their weight will be consigned to the manufacturers of soap.*

Any animal however badly shaped, can be made inordinately fat, sooner or later, by extra quantities of nourishing food; but this is not the way to improve the farm stock of a country. Plain reason and sound sense dictate that what we require, is a breed that will soonest furnish the greatest quantity of good meat or milk at the least expense. It is only in this way, that the advances of the grazier will be returned to him, and it is the quick return and circulation of capital that enriches a nation. The money expended and even lost by feeding heavy show beef cattle, impoverish more or less a country, by diminishing the means which the feeders would have had without such expenditure, of bringing to market a greater number of cattle in future.

Two methods, and two only, exist by which farm stock can be improved. The first is by breeding from those native individuals of a kind, possessing the forms known to take on most easily flesh and fat, and by occasionally crossing their progeny with others having points in which those resulting from former experiments, may be deficient. If milk be the object, subjects should be selected which yield great quantities of it, and of a good quality, and retain it longest; and crosses may be made with those males within our reach having the best forms and least offal. Materials for such experiments are by no means deficient among us, but unfortunately the spirit for slow improvement does not sufficiently prevail among our intelligent cultivators. In this way a man may in a few years obtain a breed, from which he may live to derive great profit. It is by such methods, that the breeds of England and some parts of the continent of Europe, have been brought to the great perfection which they at present exhibit.

A second and much more expeditious method of improving the breed of cattle, is by importing such stock from Europe as possess the points to which we wish to direct our attention.

The diffusion of the Merino and New Leicester

* Other bad effects of such public processions are the loss of work among every class of mechanics, the interruption to the education of the poor, and the employment to useless expense for strong drink which they excite, at a time, too, when the means of employment are so greatly circumscribed as at present. When this paper was read, many facts in proof were given by different members.

breed of sheep, sets us at ease respecting those inestimable animals. It is to the increase of beef and milk, that the spirited improver should chiefly attend; and fortunately a breed combining both objects is easily attainable, by the importation of the "improved short horned-cattle" from England; a race which, owing to the persevering industry and intelligence of the breeders in the north of England, has reached to as much perfection as can be conceived or desired. Some of this valuable stock are already in the United States. Mr. Williams of Northborough, Massachusetts, has a noble specimen of it, and several of his descendants are in the vicinity of Philadelphia, in the possession of a gentleman animated with the true spirit of improvement, and who formed his judgment on this subject from an attentive examination of the best specimens of the stock in England, and comparing them with other breeds. Two arrived in Philadelphia about three years since, on their way to Kentucky, where they brought one thousand dollars a piece at public auction. A son of the famous Comet, which sold for one thousand guineas, at the sale of Mr. Colling's cattle, in England, is at New Brunswick, New Jersey; but if every county in every state had a pair of them, the nation could not be soon overstocked.

An inspection of the animals alluded to, would convince any one acquainted with the good points of stock, how far the short-horned breed is superior to all others hitherto introduced into the United States, in the great objects of size and form. But as it is in the power of few to enjoy such gratifying sights, some particulars shall be given to show the grounds upon which our praises are bestowed. Mr. Charles Champion, of Blyth, near Hawry, Nottinghamshire, England, writes to me as follows: "You mention the weights of several oxen which have been slaughtered in America, but as you have not stated their ages, suppose they must have been six or seven years old: their weights were certainly great, but in England we do not consider those overgrown animals the most profitable: our lands are generally so highly rented, and the poor rates and taxes so exceedingly burdensome to the farmers, as to call forth their best exertions, and it becomes his interest to select that breed of cattle which will make the quickest and most profitable return for the food they consume: for these objects, no breed is so eminently distinguished as the improved short-horns: their early maturity being a fact now so well established, that they are spreading in every direction, both in England and Ireland. It has been my practice for some years to feed my steers, and sell them to the butcher from two up to three years old, when they generally average 70 stone of 14 lbs. (980 lbs.) with 10 stones (140 lbs.) of loose tallow. I sold a steer by Blyth Comet in May, 1817, at Blyth fair, for 36s, weighing 72 stones (1008 lbs.) and he was only 22 months old. At my sale the other day (January 28, 1820,) I sold a steer to Mr. Arnsby, which is now two years and ten months old, and would weigh if killed, 105 stones, (1470 lbs.) This steer is by Blyth Comet. In November, 1812, my turnips having failed, I sold ten young steers, all of my own breeding, to my brother, who fed them in an open yard, without a shed to go under, upon Swedish turnips and straw, without any other food, except a small quantity of clover hay, once a day, for about a month before he sold them. The price I obtained for the steers in November, was 17 each, being at the time a full market price, and my brother sold them for 139 10s each, leaving 123 10s. each for five months keeping."

Mr. Champion has presented to the Philadelphia Society for promoting Agriculture, a finely engraved

* Mr. Champion was right in his conjecture.

*The cattle were exhibited in stalls in the upper part of the city from the 8th to the 12th March. They were then killed, and their quarters carried about the city in formal procession in carts on the 15th.

portrait of a steer raised by him, from a painting he had taken a few days before it left Blyth for London; this print is hung up in the room of the society, and cannot fail to draw forth expressions of admiration from every judge of cattle. The weight of the four quarters, as set down on the corner of the print, was 178 stones, which at 8 lbs. to the London stone, make 1424 lbs. The tallow weighed 199 lbs. A bull three years and two months old, of the same breed (the short-horned) but from a different stock, weighed alive 160 stones (2240 lbs.); and his four quarters were laid at 1540 lbs.; Six steers, three years and six months old, weighed, the four quarters, 94 stones each (1316 lbs.). Their tallow weighed from nine to ten stone each, (126—140 lbs.) These cattle belonged to Mr. John Nicholson of Gipton, near Leeds, Yorkshire. What weights would such stock reach, had they the advantage of Indian corn?

When the intelligent American grazier calculates the difference between the profit of feeding an animal which, say at three years old, will reach these weights of flesh and fat, and reflects on the loss commonly sustained by feeding another, six or eight years old, for a much longer period, in order to make him equal in weight, he cannot for a moment hesitate to make up his mind on the superior advantage to be derived from the short-horned breed.

The importation of a pair of them is therefore urgently suggested to the spirited American grazier. The expense will soon be repaid: for the reputation of the breed which will precede their arrival, and much more, the sight of the animal, will create an anxiety in our farmers, who are quick in discerning sources of profitable investment, to possess themselves of it. The great prices given for merino sheep during the late war with England, and for the mere use of a new Leicester tup, before that event, and while the full blood was confined to one man, afforded ample proof that farmers do not hesitate to risk high prices for stock, when a reasonable probability exists of obtaining quickly an interest for capital advanced; and when we reflect that the amount of the losses sustained by those concerned in preparing the objects for the late show, and of two former similar exhibitions, would be much more than sufficient to secure to Pennsylvania a pair of the breed of cattle in question, it is to be regretted that so much money should have been thrown away, without producing any permanent benefit to the country. Our farmers reflecting, that by crossing the best of their own stock, or the best they could procure, with the foreign breed, they secured a portion of a distinctive, strongly marked race, the characters and valuable properties of which would certainly increase as they advanced in the blood, would be led to make the experiment, and the gratification derived from the thriving disposition and beauty of form, exhibited in the progeny shortly after their appearance on their farms, would stimulate them to its repetition; and when, after a few years they

found that the new breed furnished more and richer beef, at a much earlier age, and with less feed than is commonly required for native stock, and richer milk and better working oxen than any they before had, their minds will be made up as to the exclusion of all other breeds of horned cattle from their farms. But this is not all; their stock will be viewed by their less enterprising and more cautious neighbours: motives of interest and self satisfaction derived from the treasure in possession, will excite the owner to diffuse a knowledge of its value, which will be every year more and more enhanced, and the demand for it be enlarged, from the increasing numbers annually engaging in the agricultural life. Hence a source of revenue will be secured to himself and family.

The peculiar marks which designate this breed from all others, are, capacious barrel shaped bodies, straight backs, broad loins, small neck and head, short horns, full chins, leaving no hollows behind the shoulders, clean chaps, bright and prominent eyes, deep chests projecting well before the legs; *forelegs clean, straight, and standing wide*; not knock-kneed (or in-kneed,) wide hips and round; rump lying in a horizontal direction, not sinking backwards: the tail set on so high as to take in the same line with the back, and lastly small bones. A portrait of a bull of this breed, may be seen in the "Archives of Useful Knowledge," vol. i. p. 358, and plates of several more, and of cows of the same breed, in "Tuke's Survey of Yorkshire."

There is another breed of cattle, the Scotch, or Kyles, well deserving the attention of the American improver, on account of their extreme bony constitution, and tendency to early fattening on grass alone, and of their filling up a vacancy in the supply of good beef about August and September, a time, when the heavy cattle of the preceding season have all been killed off, and the stock of the season have not come in. Repeated experiments with the Kyles in England, have shown that in one summer, at four years old, they will reach from 500 to 700 lbs. weight, with from 70 to 90 lbs. loose fat.

The great misfortune has hitherto been in the United States, as respects cattle, that, although within the last 50 years, they have greatly improved in form, owing to judicious crosses between native stock, and occasionally with foreign breeds that were introduced, yet no blood has been kept so pure, as to enable any one to say he possessed a race with characters so strongly marked, as would insure their transmission to his or her descendants. Our whole procedure in this business, has been a system of chance, and this want of certainty in our crosses has been one reason why so few have hesitated to accept of a high price for a thriving calf, which had it been raised, might have proved the origin of a valuable breed. It is full time to begin to conduct our operations upon fixed principles, and no time could be more propitious than the present, when a spirit for improvement, which the friends to agriculture have been striving for many years to excite, is diffused through the United States, and when foreign commerce has ceased to offer those allurements, which so powerfully attracted our citizens, and drew off their attention from internal objects.

FOR THE AMERICAN FARMER.

Indian Corn, Pumpkins, &c

Silver Lake, Susquehanna County, Penn-
sylvania, March 6th, 1821.

J. S. SKINNER, Esq.

Sir,—I received some time ago, your letter of the 26th December, and beg you to excuse me for not answering it sooner. On receiving it, I requested a gentleman in Philadelphia, to whom I had sent some of the corn, to transmit a part of it to you.

Last Spring I appropriated a small field near my house, containing not quite five acres, to experimental crops. The preceding year it had been broken up (being new land) the first

time with the plough, and planted with potatoes. The soil is a loam, somewhat inclining to sand, nearly two feet deep.

When ploughed, it was manured with rotten dung, which the negligence of my farmer had suffered to remain at a barn in its vicinity, till much of the fertilizing power was lost. The ground being in fine order, I sowed it with a variety of crops on trial. English oats, (the heavy kind) mangle wurtzel, ruta бага, pumpkins, and corn, had each a share of it. When the oats were coming into head, a very heavy gust of wind and rain laid them perfectly flat on the ground, and I gave them up as lost. They, however, partly recovered, and when threshed, produced upwards of fifty bushels per acre. The mangle wurtzel did not yield a good crop. I believe I had not the proper kind of seed. The produce was less than eight tons per acre. The ruta бага turned out tolerably well; but its produce was not ascertained. A part of it was fed to the cattle last autumn, and the rest suffered to remain through the winter in the field, in the expectation, from its character for hardiness, that it would be fit for the sheep in the spring; but in this I was disappointed—it is entirely rotten; and a sound root left. Two years ago, some common turnips were suffered to remain in the ground all winter, and were perfectly sound and good in the spring. That winter was mild, and the ground was completely covered with snow—the last winter was very severe, and during part of it, the ground was bare of snow, and the ruta бага alternately frozen and thawed.

The corn, and the ground on which it grew, were accurately measured. There was not quite an acre in the piece. The produce as measured, was at the rate of one hundred and thirty-six bushels per acre. It was planted on the third of June, and harvested on the sixteenth of September. It is a white corn, the ears small, and containing eight rows. The stalk does not grow above five or six feet in height. It has lately been introduced into this vicinity from the north. I had heard it mentioned as being a very early kind; but not as being uncommonly productive. My neighbours supposed it to be a fortnight earlier than the small yellow corn. I had it planted in rows, three feet apart, the stalks nine inches asunder in the rows. A person accustomed to the tall southern corn, on seeing a field of this kind growing, would form an unfavourable opinion of it, until he examined the number of ears in a given space. The ground was manured with the rotten dung above mentioned, and in the rows. It was once ploughed, and once hand-hoed. Just before the usual time of topping, as the rows of corn were very close together, I had every other row cut off close above the upper ears, supposing that the fecundating dust of the remaining tassels would be sufficient for the ears on the whole field—but the examination, which should have been made, to ascertain whether there was any difference of produce, between the rows topped, and those untopped, was neglected when the corn was harvested. It should be observed, that the ears were in silk when the tops of the plants were cut off. As the rows were planted east and west, and close together, cutting the tops of the alternate rows had the effect of left-

* The value set upon the "improved short horned breed of cattle," may be judged of from the prices they bring at auction. At a sale of the stock of Robert Collings of Ramton, Co. Durham, Sept. 1818, 61 lots of cattle and sheep, brought 9426l. 4s. sterling—the cattle sold for 7852l. 12s. In 1819 at the sale of Charles Collings, sise at Kelson, 45 Bulls, cows, and Heifers sold for 13485 sterling. See Archives of useful knowledge vol. 2, p. 65. At Mr. Clampon's sale at Blyth, Jan. 1820, twenty head averaged 38 guineas and 3-5ths each. See the "American Farmer" No. 23, vol. 2d. for the particulars of this sale.

† There can be no difficulty in procuring a pair of these inestimable cattle. A letter directed to Mr. Clampon would soon reach him, and on being satisfied as to the lodgment of funds in London, would doubtless make all the necessary arrangements for the safety and sustenance of the stock. A man must accompany the animals to take care of them on ship-board. Twelve hundred dollars would cover all expenses for a pair, insurance included.

‡ From \$100 to \$500 were given for a merino tup; and \$150, and \$200, were paid by several for the use of a new Leicester tup, to captain Farmer, of New Brunswick New Jersey, for one season.

ting the sun more perfectly to the ears, while the thickness of the vegetation below, shaded the roots, and kept the ground moist. This kind of corn requires a rich soil. The fodder produced, is, probably, less abundant than that of the tall corn; but the stalks are said to be more saccharine and nutritious. In the 25th No. of your 1st volume, there is a statement of a large produce of pumpkins, estimated at 50,000 weight per acre. Mr. Rafinesque thinks that they may frequently yield that amount. I have tried the large kind, but did not find them ripen well. The largest of them weighed 127 pounds, which is much less than some mentioned in the paper to which I have alluded. The common kind, although much smaller (averaging from twelve to fifteen pounds) produced a greater weight from the same ground, and yielded, (the ground being carefully measured, and a sufficient number of cart loads of the pumpkins weighed to ascertain the medium weight) twenty-seven tons and an half per acre; or 55,000 weight gross; equal to 61,000 pounds. They were planted singly, in hills, six feet by three apart; manured like the corn, and ploughed and hued once. When the frost killed the leaves, the pumpkins were seen so completely to cover the ground, that my neighbours observed they looked as if they had been carted from other parts of the field, and tited upon the place where they had grown.

I believe few crops will better repay the attention of the farmer than pumpkins. All kinds of stock are very fond of them. Indian corn and pumpkins would bear very conspicuous stations in the rotation of crops in English husbandry, if the climate of Great Britain would enable the English farmer to raise them.

I am, sir,

Your very obedient serv't

ROBERT H. ROSE.

For the American Farmer.

HOGS.

Some remarks on the treatment of them and other LIVE STOCK.

JOHN S. SKINNER, Esq

A correspondent in the last number of the Farmer requests some information and a remedy for a disorder he describes in hogs, attended with sore eyes, eruptions on the skin, shrivelled hairs, &c. I beg leave to offer him and others, a conjecture as to the cause of the disease; having never had any experience respecting it, though I have noticed the sore eyes occasionally, in these animals above forty years ago.

From the statement of the wet seasons and cold weather, it may be reasonably inferred, that the cause of the disorder among these creatures, is the same that occasions so many maladies among their betters of mankind. It is probably exposure to cold and wet, which produces so frequently, similar diseases among ourselves, when poverty or accident exposes us ill clad, and unsheltered. There seems to be a pretty general opinion that all animals, men, or cattle, if they are accustomed to suffer the changes of weather, they are not hurt by them; and therefore they are too commonly left without pity to endure them. But though habit does much, in this case, especially when joined with vigorous exercise, it is not enough. While our feelings loudly teach us, and our reason fully assents to the necessity of shelter, cover and bedding for ourselves, let us not be deaf or blind to what they teach us in others. Some of these stand pretty high in our interests, and shall any

be below our sympathy? Listen to the complaints of every animal that is used to express them by sounds. When wet and cold, the dog whines, the cat mews piteously, and every humane person opens a door for them somewhere. If we do not hear the horse and cow, we see them shiver, sometimes almost to our hearing. Their suffering is plain, and the one most a favourite is not only housed, but often, injudiciously clothed. The hog appeals to all our senses; he shivers, his thin hairs are clotted and dripping, he utters loudly his complaints! But he is not a favourite! he is rude and dirty; neither amuses nor renders any daily services: he is destined to slaughter, and suffers unpitied any natural evils that befall, all the few days allotted to him by the will of his master. Yet interest has forced most of those, who are wise enough to see it, to provide some cover, some rough bedding, to preserve and render more profitable, these condemned creatures. And this is the remedy I would propose to your correspondent: not to be confined to those only he pens up, but to be extended to any turned loose, by erecting a little shed in the edge of his wood, under a hill, siding to the south, or where most convenient for the running herd, who have instinctive sense enough to rather there at night, and in cold weather, if some leaves or litter are thrown under it.

Allow me to mention some strange mistakes, which have often struck me, even in the last measure of life and management with this animal. I have seen a number in a small pen raised from the ground, with a shed at one end and carefully floored with split poles to allow the dirt to pass through. But there was no litter in any part, and the round sides of the poles being uppermost, the creatures could not move without continually slipping, nor stand without difficulty: so that they were afraid to go to the trough, and lived so uneasily that they never got fat with all the corn given them. In other instances they have been shut up in so small a space, that having as usual rooted some holes in the ground floor, the rains filled them with water as cold as the season, and converted the little area of the pen, into one deep and filthy quagmire, through which they had to wade to their feed, and return to their lying place, clogged with the wet clay and nastiness; to creep together and add what heat they had in their bodies to the striking moisture which rose in streams between them, enough to corrode the eyes and fill the skin with ulcers from head to tail.

Unless a man exercises his reason better, he would do well to treat that of the hog, who will keep himself dry and warm, if not deprived of the liberty to do so, and fatten faster than in the pens of such masters.

BALTIMORE, April 2, 1821.

To the Editor of the American Farmer.

BRIEF REMARKS ON SEVERAL BREEDS OF NEAT CATTLE.

April 4, 1821

Dear Sir,

I am glad that Wilkinson has confirmed your impressions on the excellence of Teeswater Cattle, and as the evidence, not only of those persons who write, but of those who have bought, and used them, is so decidedly in their favor, I am anxious that you should not confound, the fine animal named Teeswater, with the ill shaped beast called Holderness.

All the varieties of short Horn Cattle, were derived from the Continent. They were taken first from Holland to the fertile meadows of Holstein in Saxony, thence to Holderness in Yorkshire, where they had been for more than a century distinguished, by flat ribs—worse bone—thick hides, and copious supplies of thin milk, when Mr Collings and other spirited Breeders upon the banks of the Tees, selected the best individuals, crossed them with Norman, and Lincoln Bulls, after bred in and in until the rich milk of the Norman, and the straight long backs of the Lincoln were obtained, whilst the larger hind quarters,

and capacious udders of the Holderness were established.

Teeswater Cattle combine all that can be desired, in form, properties, or disposition: their early arrival at maturity—their great weight in the valuable parts—the quantity, and singular quality of their milk—the thinness of their necks—the smallness of their heads, horns, tails and other offal, the docility of their temper, and quickness of their proof, give them a decided advantage throughout Great Britain, over every race of either short, or long horn stock. Notwithstanding the rage of fashion in one district, or the passion of a celebrated Agriculturist for puny Devons, and ill shaped, restive Alderneys, Collings has obtained the highest prices at every sale.

Devons are best fitted by their Deer-like form to decorate a Park or by their nimble gait to draw the plough; Alderneys are adapted to fill the cream pots of the rich; but for the uses of the calculating Dairyman, who sells butter, the Grazier who desires flesh, the Butcher who seeks profit, and the Farmer who expects profit from his dry cows, and weight from his male calves, the Heifer which at two years gives twenty quarts of milk, the steer which at two produces 2000lbs of beef, the Cow which at eight affords a carcass for the shambles are unquestionably to be preferred.

CURWEN

Worcester Agricultural Society.

[The publication of the following report has been accidentally delayed to this late period.]

The committee on agricultural experiments and improvements have attended to the duty assigned them, and submit the following report—

They have awarded to *Payson Williams*, Esquire, of Fitchburg, for the greatest quantity of potatoes raised on an acre of land, being 614 bushels, \$6.

It will be recollected that Mr. Williams obtained a premium the last season for an inferior crop, (the quantity then being only 590 bushels on an acre): on which occasion, however, the committee remark, "that the quantity probably exceeded any crop for which a premium had been obtained within this commonwealth."

The present season has certainly not been a favourable one for the cultivation of potatoes; and the committee are persuaded that Mr. Williams is indebted for his success, not only to a productive soil, but to a highly judicious mode of culture.

The whole expense of raising and harvesting the 614 bushels, including 37 loads of manure, and the value of the seed, is estimated by Mr. Williams, at \$7 dollars, or something less than 15 cents per bushel.

The committee indulge the hope: that the repeated success of Mr. Williams will induce many of the farmers of this county to adopt the improved method of culture by which that success has been obtained.

The committee have not thought it expedient to award any premium for the greatest quantity of wheat; as, owing to the unfavourableness of the last season, or to the want of competition, the quantity for which a premium is claimed is only 19 bushels.

There were five samples of potatoes raised from seed-balls exhibited: one from Nathan Perry of Worcester; one from Uriel Johnson, of Worcester; one from Oliver Wilson, of Leicester; and two from Joshua Richardson, of Uxbridge. One of Mr. Richardson's samples being of a "superior quality," the committee awarded him the premium of five dollars.

The committee also received, on the day of their meeting, a communication from Samuel Leland, of Andover, by which it appears that he raised on 106 rods of land, 59 bushels and 27 quarts of corn—equal to 90 bushels and 10 quarts per acre.

By order of the Committee,

STEPHEN WILLIAMS,

CHAIRMAN.

WORCESTER, December 12, 1820.

PISÉ,

Or the Art of Building strong and durable Walls, to the Height of several Stories, with nothing but Earth, or the most common Materials. Drawn up and presented to the Board of Agriculture, by Henry Holland, Esq.

[Continued from No. 2, page 13, volume III.]

Of Pisé and its Origin.

CHAPTER III.

Method of working.

Let us not content pisé with that miserable way of building with clay or mud mixed with hay or straw, which is often seen in country villages. Those have been unable or unwilling to distinguish between them, nothing in reality can be more different. Those wretched huts are built in the very worst manner that could be imagined; whereas pisé contains all the best principles of masonry, together with some rules peculiar to itself, which are now to be explained. Plate V. figure 15, represents the plan of a house, the building of which will be regularly described, according to the method of pisé.

To begin with the foundation; this may be made of any kind of masonry that is durable, and must be raised to the height of two feet above the ground; which is necessary to secure the walls from the moisture of the earth, and the splashing of the rain, which will drop from the eaves of the roof. When these foundation walls are made level, and eighteen inches thick, mark upon them the distances at which the joists are to be set, for receiving the moulds; those distances should be three feet each from centre to centre. Each side of the mould being ten feet long, will divide into three lengths of three feet each, and leave six inches at each end, which serve to lengthen the mould at the angles of the house, and are useful for many other purposes. After having set the joists in their places, the masonry must be raised between them six inches higher, that is, to a level with the joists; there will, therefore, upon the whole, be a base of two feet and a half, which in most cases will be found more than sufficient to hinder the rain, frost, snow, or damp, from injuring the walls. Raise the mould immediately on this new masonry, placing it over one of the angles of the wall. The manner of raising the mould has been already described; the head of it, which is to be placed against the angle, should have eighteen inches in breadth at the bottom, and only seventeen inches and a half at the top; thus the sides of the mould will incline towards each other, and produce that diminution in the thickness of the wall, which is usual in buildings of this nature. The wedges must then be driven in, and the posts well fixed by cords, and the head of the mould secured by iron pins; the preparations are then complete, and the workmen may begin.

A workman should be placed in each of the 3 divisions of the mould, the best workman being placed at the angle. He is to direct the work of the other two, and by occasionally applying a plumb-rule, to take care that the mould does not swerve from its upright position. The labourers who dig and prepare the earth, must give it in small quantities to the workmen in the mould, who, after having spread it with their feet, begin to press it with the rammer. They must only receive at a time so much as will cover the bottom of the mould to the thickness of three or four inches. The first strokes of the rammer should be given close to the sides of the mould, but they must be afterwards applied to every other part of the surface; the men should then cross their strokes, so that the earth may be pressed in every direction. Those who stand next to one another in the mould

should regulate their strokes so as to beat at the same time under the cord, because that part cannot be got at without difficulty, and must be struck obliquely; with this precaution, the whole will be equally compressed. The man at the angle of the wall should beat carefully against the head of the mould, and for the sake of the appearance, or perhaps to increase the strength of the building, it is usual to spread every six inches high a layer of mortar near the head, in imitation of the joints of stone-work. Care must be taken that no fresh earth is received into the mould till the first layer is well beaten, which may be ascertained by striking it with the rammer; the stroke should leave hardly any print on the place. They must proceed in this manner to ram in layer after layer, till the whole mould is full. When this is done, the machine may be taken to pieces, and the earth which is contained will remain firm and upright, about nine feet in length, and two feet and a half in height. The mould may then be replaced for another length, including one inch of that which has first been completed; the regular manner of joining the different lengths may be seen in the geometrical elevation, Plate VI. figure 16, and particularly in Plate VII. figure 18, where it will be observed, that no joints are left in this work, as the different lengths are united, and made to press one on the other. In the second length, and most of the following, the head of the mould is useless; it is only made use of at the angles.

When the workmen have gone round the whole building, taking the mould to pieces and putting it together again successively, they must begin upon the partition wall, marked G, in Plate IV. Here the head of the mould must be used, as the door jambs are squared like the angles of the wall. The jamb next to the exterior wall, which is too narrow to be made of pisé, can easily be made of wood, brick, or stone.

The first course being thus completed, we proceed to the second; and here it must be observed, that if in laying the first course we begin with one angle, as the angle A, in Plate V. and proceed with the work towards E, we must, for the second course, begin with A, and proceed towards B, and so in each successive course we must proceed in a direction contrary to that of the preceding. It may easily be conceived, that with this precaution the joints of the several lengths will be inclined in opposite directions, which will contribute very much to the firmness of the work. There is no reason to fear overcharging the first course with the second, though but just laid for three courses may be laid without danger in one day; mark the grooves for receiving the joists in the first course, at the distance of three feet from one another, but not immediately over the former grooves, but over the middle points between them; see Plate VI. figure 18. These grooves must be cut with a pick-axe, and the second course completed in the same manner as the former, except that it must proceed in a contrary direction, as was before observed, and that the head of the mould and wall-gate must be diminished, in order that the same inclination of the sides to one another, that was given to the first course, may be preserved in this second.

It must, however, be remarked, that this second course is not to be continued without interruption like the first, as it is necessary that the partition wall should join or bond into the exterior wall; or rather, that all walls in the building, whether outside or partition walls, which meet at an angle should cross each other at every course. In pursuance, therefore, of this rule, when the work has been advanced from A and C, Plate IV. or perhaps not quite so far as C, leave the exterior wall, and turn the mould to the partition, applying the face of it to C. This will appear more clearly by observing the letter G in Plate VI. When the work has been carried on along the partition wall, as far as the door, bring back the mould to the part which remained unfinished in the exterior wall, marked C in plate V. and after having filled up that space, carry the mould on beyond the partition wall, and complete the course. The reason why the partition wall on the side oppo-

site to C, Plate IV. is not to be connected in the same manner with the interior wall, has already been given, viz. that it ought to be made of wood, or brick-work, and not of pisé; but the third course must be carried over the door, and join into the wall, as directed on the other side.

This description of the two first courses is equally applicable to all the others, and will enable any person to build a house, with no other materials than earth, of whatever height and extent he pleases.

With respect to the gables, they cannot be crossed, as they are detached from one another; but as their height is so inconsiderable, and they are besides connected together by the roof, this is not of any consequence. They may be made without any difficulty, by merely making their inclination in the mould, and working the earth accordingly.

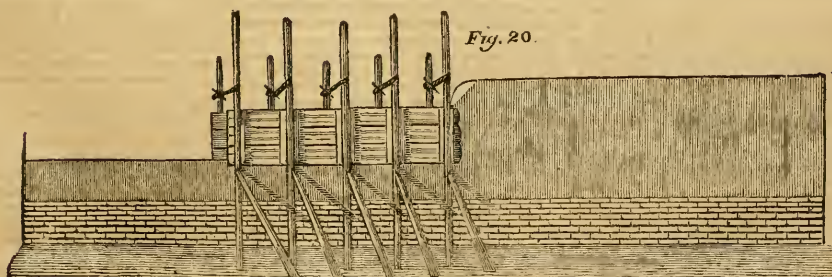
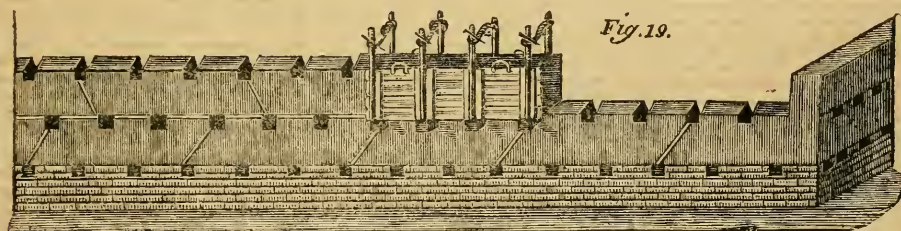
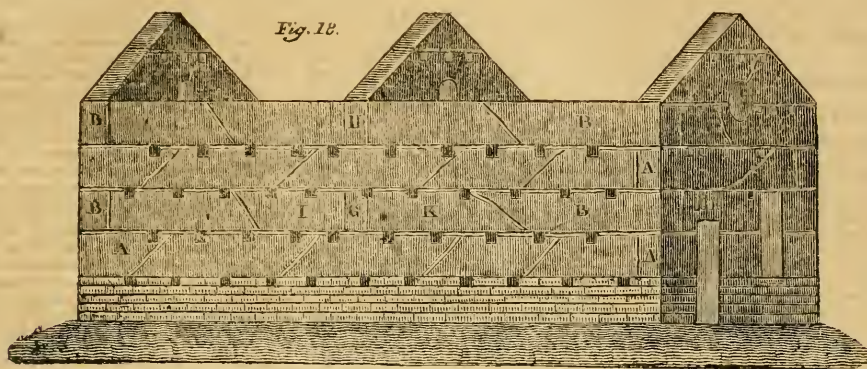
It has been observed, that each course will be two feet and a half high, if the mould is two feet nine inches; for the mould must include three inches of the course beneath. For this reason the grooves are made six inches deep, though the joists are only three inches in thickness. If the directions which have been given for diminishing the thickness of the walls are observed, that thickness will be reduced to fifteen inches at the roof, in a house (like that of which a design is annexed) consisting of six courses; for in each course there will be an inclination of half an inch. The gables might have been reduced to fourteen inches only in thickness, as an interval of fourteen inches only was left between the mortises of the joists; and by increasing or diminishing that interval, the thickness of the walls may be regulated at pleasure.

Such is the method of building which has been practiced in the Lyonnese for many centuries. Houses so built, are strong, healthy, and very cheap: they will last a great length of time, for the French author says, he had pulled down some of them, which, from the title-deeds in the possession of the proprietors, appeared to be 165 years old, though they had been ill kept in repair. The rich traders of Lyons have no other way of building their country houses. An outside covering of painting in fresco, which is attended with very little expense, conceals from the eye of the spectator the nature of the building, and is a handsome ornament to the house. That method of painting has more freshness and brilliancy than any other, because water does not impair the colours. No size, oil, or expense is required, manual labour is almost all it costs, either to the rich or poor. Any person may make his house look as splendid as he pleases, for a few pence laid out in red or yellow ochre, or in other mineral colours.

Strangers who have sailed upon the Rhone, probably never suspected that those beautiful houses, which they saw rising on the hills around them, were built of nothing but earth; nay, many persons have lived for a considerable time in such houses, without ever being aware of their singular construction. Farmers in that country generally have them simply white-washed, but others, who have a greater taste for ornament, add pilasters, window cases, panels, and decorations of various kinds. Plate V. figure 17, represents the house of the poorest inhabitant of the Lyonnese.

There is every reason for introducing this method of building into all parts of the kingdom; whether we consider the honor of the nation as concerned in the neatness of its villages, the great saving of wood which it will occasion, and the consequent security from fire, or the health of the inhabitants, to which it will greatly contribute, as such houses are never liable to the extremes of heat or cold. It is attended with many other circumstances that are advantageous to the state, as well as to individuals. It saves both time and labour in building, and the houses may be inhabited almost immediately after they are finished; for which latter purpose the holes made for the joists should not be closed up directly, for the air, if suffered to circulate through them, will dry the walls more speedily.

(To be continued.)



To the Editor of the American Farmer.

SIR—On the 243d page, of the second vol of the "Farmer," you advise husbandmen to communicate their experience on agriculture in writing, and offer them the pages of your work. You add, "the plain every day conversation style of the farmer, to his neighbor, is the best style on paper, for agricultural subjects, and therefore he who can tell his experience, by word of mouth, can write it." I most heartily subscribe to the justness of this remark, and feel well satisfied, that the value of the "American Farmer" would be much enhanced, were the writers for its pages to attend strictly to this advice.

I have derived amusement from some, and I hope, much instruction from other parts of your work. I think it well calculated to diffuse a mass of most valuable information, to a class of our community, who stand much in need of such instruction. To the plain farmer, of moderate pecuniary resources, who is unable to purchase more expensive works on agriculture, it is of incalculable value. And this is the class of our agriculturists, who will derive most advantage from your labors, and those of your correspondents, provided, the facts and doctrines contained in your work, are made intelligible to their understandings. I should think, that the first object of every writer who addresses such readers, should be to express his ideas in the plainest, clearest and most intelligible language. His chief ambition should be, to *instruct* his readers, which he cannot do, unless he is clearly and fully understood by them.

With these preliminary observations, I proceed to the object of this communication, which is respectively to question the propriety of the use of the *Latin* language, in any agricultural discussions, which are intended to appear in the "American Farmer." And here let me assure you, Mr. Editor, that these observations are offered in the spirit of the most friendly feeling, towards those writers who have employed that language; because I have derived much pleasure and, I hope, instruction, from their communications, and should have read them with feelings of delight *alone*, had they been altogether expressed in the English language.

In the instances, which I now recollect, wherein the *Latin* language has been used, I have not perceived, that its employment rendered the meaning of the writers more clear and intelligible, even to those who understand that language, than English words would have done. And if I be correct in this, I may I not question the propriety of its use?—Let us attend to some of those instances, and see whether the ideas of the writers, would not have been just as well understood had they been expressed in English.

Perhaps you are acquainted with, or at least know something of Mr. John S. Skinner, P. M. at Baltimore. In some observations of his (in my memory be correct) some where in the 2d volume of the Farmer, but on what page, I cannot now tell, he uses this language: "The Marylanders and Virginians, *contra bonos mo-*

res, do," &c. &c. Suppose he had said, The Marylanders and Virginians, *against good morals, do,*" &c. &c.: I would not his meaning have been just as well understood by the best classical scholar in our country, as it was, by the use of the *Latin* words, "*contra bonos mores*?" I leave you Mr. Editor to decide this question between Mr. Skinner and myself.

In a memorial of Mr. Joseph E. Muse on the *mode of operation* of Plaster of Paris, published in your first volume, which I should have read with unmixed pleasure and satisfaction, had he used the English language alone, we meet with the words "*modus operandi*" several times. In an address of the same gentleman (published on the 215th, 6th and 7th pages of the 2d volume of the Farmer) delivered before the "Agricultural Society of Maryland," we find the following language: "Gypsum has been for many years so extensively used, that to dwell on it, would be superfluous; yet were an inquiry made into its peculiar *mode of operation*, it might," &c. &c. The second sentence after this, is worded thus: "With this view, I presented to this Society a memoir on the *modus operandi* of gypsum," &c. &c. Now, Sir, let me respectfully put this question to Mr. Muse: Is not the first sentence of these two quotations in which you use the English words, "*mode of operation*," as intelligible as the second, in which you employ the *Latin* words "*modus operandi*," even to a *Latin* scholar, who understands English? And if so, where, in this case, is the *utility* or propriety of using the *Latin* language? For let it be also remembered, that all those readers who do not understand *Latin*, will not comprehend the latter sentence at all.—Other instances might be given, but let these suffice.

Let us by way of illustration, suppose that the readers of the Farmer are *ten* in number, and that *five* of them are classical scholars, and the other *five* plain farmers, who know nothing of the *Latin* tongue. If a writer use the *English* language alone, and writes intelligibly, he will be understood by the whole *ten*; but should he use the *Latin* language, that part of his communication which consists of *Latin*, is only understood by one half of his readers, and by that half too who are the least likely to require the information intended to be given. And as it regards those, who do not understand *Latin*, it is at least unkind to use it; because the ideas of the writer, which are thus expressed, are lost to them, and perhaps the rest of the communication will not be as well understood by them, as it would have been, had the English language alone been used.

Every person, I presume, who has read at all has frequently experienced the inconvenience of having his mind drawn off from the subject of his author, by some incidental train of thought, which an association of ideas has produced, arising from some remarks of the writer, or from some extraneous circumstance. I do not know how it is with others; but with myself, I never come across a *Latin* quotation in the "American Farmer," without its completely drawing off my attention, for a while from the subject under discussion. My first feeling is regret: then the advantages of a classical education are

discussed: then I think of the Romans, of their arts, their learning, their wars, their virtues and their crimes. I then think of the Grecians, the rivals of the Romans in all these particulars: then of the Turks, and the countries they have over run: I then find myself at the mouth of the Nile: then I think of the Alexandrian Library and its ruins: then of Cleopatra's needles: of Pompey's pillar: of Pompey's headless trunk and trunkless head: then of the trade which has been carried on in Pompey's heads: then I accompany the latest importation of this article, that I have heard of, and find myself in New-York. I arrive with awe and trembling, in the presence of the learned Dr. Mitchell: I think I see him, holding this head of Pompey in his left hand, whilst, with his right extended, he is making sweet speeches to its withered greatness: then I think of the Doctor's daily "association with the wise and the good of our days," and the dead of former times: then of the "Memorandums" sent to the Editor of the American Farmer. This brings to my recollection, how I was disappointed when I got to the end of these "Memorandums", and found them

"Like the story of the fiddle
"Broken off in the middle"

by the "interruption" of some visitors, who brought the Doctor the *very unpleasant* news that a diploma had been issued by the *Imperial Academy* at Moscow, certifying that he had been elected a member. This brings the "American Farmer" into my mind again, and I recollect, that I have just been reading something in it, and that the above train of thought has for a while completely driven the plough, the harrow and the hoe from my mind.

If these considerations be not sufficient to induce your correspondents to use the English language alone, I hope such as continue to employ *Latin*, will be at least kind enough to accompany it with an English translation.

WILLIAM JASPER.

March 24, 1821.

For the American Farmer.

TO RAISE A CEDAR HEDGE.

From a Farmer of much experience on the subject.

Gather the berries in November or December. Rub off the skin and wash the kernels—rubbing them well between the hands, so as to get off as much of the resinous substance as possible, then mix them with unslacked ashes, and let them remain in the ashes for a fortnight; then plant them in drills as you would peas, and they will vegetate and come up the following spring; and being well nursed, they will in two years be fit to plant out in Hedges—about the first of March is the proper time for planting them—throw into the bottom of the trench, light rich earth, such as may be had from the surface of productive ground. When the trees attain three feet high, you should begin to train the Hedge—about the middle of summer, is a suitable time for this operation, and it ought to be carefully continued until the Hedge is as high as you may desire it—about 7 feet high, and 3½ feet broad is sufficient.

N. B. The better you cleanse the kernel, the more certainly the seed will vegetate—by proper care an excellent Hedge may be expected in 7 years which for beauty and durability, cannot be surpassed either by thorns or any other growth.

ON CHEESE MAKING,

As practised at one of the most eminent Dairies in New England, communicated at the request of the Editor of the American Farmer.

SIR—Agreeable to your request we have obtained from our brother, Leonard Hurlbert, a brief account of his manner of making Cheese which we enclose you for publication if you deem it worthy of a place in your useful paper. His manner of making Cheese we suppose to be as perfect as any yet discovered, as his cheese is of an excellent quality, and is known in Baltimore as such—specimens of which probably may be seen at Barum's Tavern, and at McClure & Foltz, and Marple & Williams' stores, who have had of the dairy for a number of years past. Your's respectfully,

SAML. HURLBERT & CO.

CHEESE MAKING.

From long experience I have found the following to be the best method of manufacturing Cheese, viz:—Add the night's milk with the morning's milk, and gently heat it over a fire in a kettle to 94 degrees, then put it into a tub or vat, then add a sufficient quantity of prepared annatto to give it a handsome yellow colour; next add a sufficient quantity of rennet to make it curd in 25 minutes—when curdled, make use of a wooden knife or sword of sufficient length to reach the bottom of the tub, and chequer it all in squares of about two inches; it is important that it should all be chequered to the bottom—then let it stand until the whey appears above the curd, say from 15 to 20 minutes; then break it up carefully with the hands in such a manner as not to bruise or break the pieces of curd; next place a clean strainer on top of the whey and curd, and press it down gently so as to cause the whey to arise on top, then ladle off the whey with a dish or dipper, what can be conveniently taken off in that way; then place a cheese strainer in a cheese basket over a tub, and carefully remove the curd and remaining whey into it, and cut it into slices with a thin skimmer, until the whey has mostly drained out; then bring the corners of the strainer together and twist them so as to press the curd into a solid mass, and place the twisted corners down in the basket, and place a clean board of about one foot square on the top of it, on which place about 20 lbs. weight in order to press out the whey and consolidate the curd. After remaining in this situation about 15 minutes the curd is to be cut in pieces of about one inch square, with a knife resembling a common carving knife, then to be put into the strainer exactly as before stated, with the weight on it, and remain from 10 to 15 minutes, and then cut as last stated, and so repeated from six to ten times, until the whey has entirely done dripping from it—after which it is taken out and cut into pieces of about two inches square, and put into a wooden bowl and chopped with a chopping

knife until the pieces are about the size of an indian corn. The next process is scalding, which is done by putting the curd into a strainer and putting it into a kettle of hot whey, heated to 126 degrees and no more, for if the whey is too hot it will ruin the cheese and make it hard and dry. While in the whey it must be stirred with the hand until the whole is equally heated. It is then taken out and put into the cheese basket over a tub, and a sufficient quantity of clean fine salt thoroughly mixed with it to give it a high salt flavour, and let it stand until it is hardly blood warm, then the corners of the strainer are twisted together as before, when it is put into the hoop designed for the purpose, and placed into the press and pressed in this instance, with the average weight of about 100 lbs. to every ten pounds of curd; to remain about half an hour in the press, then taken out and turned in the hoop and replaced in the press, and add about one third to the weight in pressing or press it one third harder than before, and let it remain about three hours; then it is taken out and placed in a clean fine linen cloth, (pains should be taken that the cloth be perfectly smooth and no rinkles in it,) it is put again into the hoop and pressed for forty-eight hours, being taken out and turned once during the time. At this pressing about one third additional weight must be added—it is then taken out and oiled, and put on the shelf to cure, where it must be turned, rubbed and oiled at least every twenty-four hours until it is thoroughly cured.

My method of preparing the oil I use on Cheese, is as follows, viz:—I put the whey I scald the curd in, into a tub and let it stand about 24 hours and an oil arises on the surface, which I skim off and put into a kettle and simmer it over a moderate fire, when the sediment will settle to the bottom, and I pour off a beautiful pure oil, which is fit for use. For painting cheese I make use of the best Spanish annatto. I would here take the liberty to remark, that there is a great deal of the counterfeited Spanish annatto, manufactured in this country, and is good for nothing; and it appears to those who are not perfectly acquainted with the article, to be of good quality, and the people have been much imposed upon with it, for the last ten years. Take eight ounces of Spanish annatto, or in proportion as may be wanted, and put it into three gallons of weak lye, made from pot or common ashes, and boil it until it dissolves and becomes of a bright yellow colour—thus it may be put into the milk as before described. To prepare the rennet to put into the cheese, I take the calf's second stomach immediately after the calf is killed, and take out the contents, which is called curd, which I do not save, as it is of no use, (as some have mistakenly supposed,) as by using it the cheese is injured thereby. I rinse the bag clean in cold water and rub it all over with fine salt and lay it away to dry; when dry I make about one gallon of brine to each bag, by mixing as much clean alum salt with not water as the water will dissolve, and after the brine is cool I put it in the bag, and when it has soaked several days it will be fit for use.

LEONARD HURLBERT.

Winchester, Litchfield County, Connecticut, 29th March 1821.

FOR THE AMERICAN FARMER.

ON PEAR TREES.

We had, Mr Editor, some weeks ago a communication from my friend Sylvanus (I call him friend because we frequently agree in notions) on the subject of the cause of decay in Pear trees. This paper I have mislaid, but as he stated a fact not generally known respecting the pear tree in that communication, and as I consider it a duty each member owes the agricultural or horticultural community to support the truth of such facts when in their power, I take the liberty also of stating a fact in corroboration of his fact; but I do not assent to his reasoning on the subject.

About 18 years ago I projected a considerable fruitery on one side of my garden, in which the choicest fruit from New-York and this state is assembled. At the time Pear trees were regularly planted on the ground, at near distances for such trees; and between them was planted each way, Peach trees, and I supposed as the latter were of quick growth and short lived, that they would have their day on the ground, before the pears would come on; but in this I was mistaken the Peach trees are still nearly all alive; but the pears grew up so quick as to injure their bearing and quality of fruit materially. The ground is literally covered with trees, and the consequence has been, as my friend says, that the Pear trees are exceedingly healthy and vigorous, having never yet lost a tree nor a limb until last year a single limb. This has been a subject of remark in this neighbourhood, where there has been considerable havoc among the valuable pears. Several gentlemen also of your city have seen them with surprise and admiration. Sylvanus, if I recollect right, ascribes the prosperity of his trees, to scions and other shady shubbery, which he supposes, takes off the too great fertility of the soil, and consequently subtracts or prevents what he supposes would be *superabundant juices*, from the trees. I have ascribed my success to a different cause, to wit, to *shade* alone; and I have concluded that the destruction is done by a stroke of the sun, not upon the tree, but upon the earth and roots, if I may so express myself. Three years ago one of my trees standing on the outer edge of the ground, in a very severe drought, was suddenly struck apparently as dead as if it had been cut down; at least the whole leaves assumed precisely the same fallen appearance. As soon as I discovered it, I had the earth for some distance round the tree well watered at night, then covered with a cart load of sea weed, and again watered, and the tree again soon recovered its health and vigour, and so continued:—From these facts, if neither Sylvanus nor I have drawn practical conclusions, somebody else perhaps may.

ENQUIRER.

April 3d, 1821.

CHEAP METHOD OF FATTENING CATTLE.

Communicated by Mr. Nathan Landon, of Litchfield.

There is a way to fatten cattle, in the absence of the common means scarcely inferior to the best, as the following instances will prove. I fattened an ox

and a three year old heifer the winter past, without either corn or potatoes, for less expense than even that of common keeping, by a preparation of cut straw, &c. as follows:—I boiled about two quarts of flaxseed and sprinkled on to cut straw, which had been previously scalded and seasoned with salt, together with some oil-cake and oatmeal, working them together in a tub with a short pitchfork, till the whole becomes an oily mush. I fattened the heifer first. She was of the common size, and in good order to winter. I gave her about three pecks, which she eat voraciously; and in the course of four days, when the seed was gone, she was visibly altered. I fed her regularly in this way about two months, in which time she had eaten about one bushel of boiled flaxseed, with the other ingredients in proportion, when she was butchered. She weighed 884 pounds, 84 lbs. of which was tallow. She would not have sold before fattening, for more than \$16; I sold two-quarters of her for \$18 13 cents. She cost me not more than \$10, exclusive of the hay she eat which was chiefly scalded as above. On the 1st of February, I singleed with the ox. I fed him about three months, but not altogether so well as I fed the heifer. He digested about one pint of boiled flaxseed a day prepared as above, which I suppose formed half the fat in these two cattle. The ox was short, measured seven feet, two inches, and when killed weighed 1082 lbs and 180 lbs. of tallow. He cost me while fattening twenty-five cents a day;—he had previously cost me thirty-five cents. My net gain in fattening these two cattle was more than all I have cleared before in fattening oxen and cows in 15 years, and this is owing I think chiefly to the use of flaxseed. I never fattened cattle that appeared so calm, so hearty, and digested all their fare with so much natural ease and regularity as these. I would therefore recommend the above preparation to the attention of farmers, as a good substitute for corn. I kept my cows on it alone in the month of March, for one third the expense of hay. It makes rich milk and excellent butter—farmers!—by a proper attention to economy, one half of our corn may be saved, to produce abundance in the land, and your garners shall overflow with oil and fatness. I shall pursue this method of feeding, and endeavor to improve it!—and trust I shall yet be enabled to say, the half has not been told.

[Agricultural Almanac.

For the American Farmer.

REMEDY FOR SORE EYES.

[FROM A FEMALE CORRESPONDENT.]

I have lately seen an application for sore eyes, rapid in its good effects, and so simple and cheap, that the poorest and most ignorant can obtain it. Take small sticks of sassafras, split in four pieces—put them in a vessel with cold and fresh spring water—they impart a glutinous matter to the water—wash sore eyes in this liquid, which cures them without smarting or heat—the poor suffer most from this disease.

E. P. C.

THE FARMER.

BALTIMORE, FRIDAY, APRIL 13th, 1821.

CATTLE SHOW AND FAIR.—The Maryland Agricultural Society, have resolved to hold their next stated meeting in June, at the Maryland Tavern, four miles from Baltimore, on the Frederick turnpike road. Premiums will then be awarded, and publicly distributed—to consist of various pieces of silver plate, for the objects mentioned in the 51st Number and 2nd vol. of the Farmer.

All persons having live stock of any kind to sell, and those wishing to buy, are invited to attend—as an auctioneer will be employed at the expense of the Society, to conduct the sale of such as the owners may wish to have sold at public sale.—Farmers

will have it then in their power to supply themselves with choice stock of every description.

The Society will dine together—and all persons desirous of joining it, will make application at the meeting above mentioned.—The annual subscription is but \$2—A more particular detail will be given hereafter.

BAIRDS NOTICE of the male animals already procured, and now ready for service, on the Editor's Stock Farm, in pursuance of his plan, which has already been explained, for improving the various species of live stock.

Horses for Parade, for the Turf, and for Harness.—CLIFFORD, a very beautiful chestnut sorrel colored Stallion, near 16 hands high, and 6 years old, bred by Joseph Lewis, Esq. of Virginia;—of this horse, Col. Taylor gives it as his opinion, that his pedigree is equal to that of any horse in the United States and the horse himself has been examined, and pronounced uncommonly fine, by some of the best judges in this state. He covers at \$25, to be discharged by the payment of \$15, if sent with the mare.

For the Saddle, and for hard service on the Roads.—YOUNG TOM.—The great excellence of this breed of horses for the Saddle, is generally known—for variety and pleasantness of gait, for hardness of constitution and length of life, they are believed to be without equal in America—being considered as in their prime at an age when other horses are worn out. The one I have procured, was bred by Cornelius Howard, Esq. He was got by Judge Winchester's old Tom, and his dam by Mr. William Owings' horse, called PATRICK TOX, out of the fine riding mare of Colonel Nicholas Ruxton Moore.—Young Tom was 5 years old the 5th of this month—and exhibits in great perfection, the points which characterise the breed of which he is the true and almost sole surviving representative.—Young Tom, will cover at \$12, to be discharged by the payment of \$8, if sent with the mare.

JACKS.—SANCHO, 14 hands high, selected at Malta, by an officer of the navy. Of this Jack, James Nabb, Esq. of Talbot County, says, "he is by far the best covering Jack, and his mules the largest I ever saw." They are more than 15 hands high, by small mares "which continued at hard service in the plough during the whole summer." Sancho is eight years old, and covers at \$12, to be discharged by the payment of \$8 if sent with the mare.

These animals will all stand at the same places, on the same days. These places and days will hereafter be more particularly designated—in the mean time they will be at the Maryland Tavern, on the Frederick Turnpike, on Thursdays, Fridays, and Saturdays; and at Wood's Tavern, Govanstown, on Mondays, Tuesdays, and Wednesdays.

BULLS.—MARK ANTHONY, a full blood d Alderney Bull, 2 years old—the breed remarkable for the richness of their milk—will be let to cows at my farm at Bovally, at \$3 each, to be sent with the cow.

Bulls of the Teeswater and Devon breeds will be provided in the course of the next two weeks, and a more particular account will then be given. The public may be assured of having these breeds in their genuine purity at my Stock Farm.

Statement of the weight of six Persian squashes, the produce of a single seed, planted in the garden at TULIP HILL, West River:

No. 1 weighed	176 pounds
No. 2	120
No. 3	80
No. 4	76
No. 5	50
No. 6	10

Total 512 pounds.

ERRATUM.—In the 2d line, of the 3d paragraph, of the second column, of the last page, for men's, read mere.

Baltimore, April 13, 1821.

PRICES CURRENT.

Flour, from the wagons, 3 63½ to \$3 75—Whiskey, from 21 cts per gallon—Hay, per ton \$17—Straw,

\$7—Wheat, red 70 cts—White do 73 to 75 cts—Barley, 45 to 50—Wharf Oats, 25 cts—Potato do, for seed, 45 cts—Corn, white, 28 to 28½—yellow, 26—Cud fish, per quintal, wholesale \$3, retail do. \$4—N. Eng. Beans per bushel, \$1 12½—do. Peas, 75 cts—Ground Plaster per ton 8 50, per barrel, \$1 45, per bushel, 35, in the stone per ton, \$6 50—New-Orleans Sugar, \$8 75 to 10—Muscovado, do. \$7 50 to 9 25—American White Lead, \$12 50—Ground, do. \$13 a 14—Linsseed Oil, 75 cts—Prathers, 40 to 45 cts—N. E. Potatoes, retail 62½ cts pr bu.—16 head very choice Cattle from a large drove, were purchased the last week by Mr. John Rusk, from Mr. George Cunningham, of South Branch, at \$6 50—Common cattle selling for \$5 50—Beef, prime pieces, 8 to 10 cts—corn Beef, 7 cts—Mutton, 8 to 10 cts—Lams, 10 to 12 cts—Middings, 8 to 10 cts—Butter, 20 to 25 cts—Eggs, 12½ cts—Cheese, 8 to 10 cts, pr lb.—Tow, \$1 62½—Soft Turpentine, \$2—Pitch, \$2½—Rosa, common 13½—bright do. \$3 per barrel—Varnish, 25 cts—Spirit turpentine, 35 cts, per gal.—Cotton, good Upland, 13 to 15 cts, per lb.—Hides, 3 a 3½ cts, ship and flooring Plank, \$25 to 27, Shingles, best 6½ a \$7, corn, 3 a 4½ p. m.—Oak wood, \$4 50—Hickory, \$5 per cord—Clover, seed \$6—Am. Orchard grass do. \$4—Eng. do. or Cockfoot, do. \$8—Herds, do. \$3—Sunflower, per bushel \$8—Millet, do. \$2—Lucern, 62 cents per lb.—Sweet Scented Vernal grass, 150 cts—Trefail, 50 cents per pound—Ruta Baga, 50 cents—Mangle Hurtzel, 175 cents per pound—Cabbage seed, 2 to \$6 per pound—Cauliflower, 75 to 100 cts, per oz.—spring Tares, \$3 per bushel—Peas, 25 to 37½ cts per quart—short orange Carrot, 12½ cts.—Parsnip, 12½ cts—Lettuce, 25 cents—Raddish, 12½ to 20 cts—Beet 20 cents—Broccoli, 31 to 100 cts—Cucumber, 37 to 50 cts per oz.—Turnip seed, 30 to 125 cts per lb.—Chicory, 75 cents per pound—Rape, 124 cents do—large Amsterdam Cabbage for cattle, 25 cents per oz.—Irish Furz or Wins, \$2 per pound—Bush and Pall Beans, 64 to 25 cents per quart—New York premium Ploughs of sizes from 7 to 16½—Box Churns, 8 to \$9—Drill Machines, 10 to \$11—Bennet's broad cast Machine for sowing Clover, Turnip, and Grass Seeds, \$18—Expanding Cultivators, \$15—Post Augurs, 5 to \$9—Flexible Tubes, to relieve cattle when hoven or choked, with gags, the pair \$5—Corn Shellers, 20 to \$25—Turnip Scoops, 50 cents each—large 2 horse Connecticut Ploughs, iron mould boards, \$11—do. do. wood, 10\$—small Ploughs, do. \$7 50.

Extract of a letter, dated Richmond, 4th April, 1821.

[Communicated for the American Farmer.]

Tobacco is fully and freely in the market here—say from 50 to 100 hds. selling daily at the warehouses—lowest grade that passes, \$5—decent, 6 to \$6½—and good to fine, 7 to \$10.

Prices of wool in New York, on the 3d instant.

Common Wool,	40 cents
Half blooded Merino,	45
3-4 do do do	50 to 55
7-8 do do do	60 to 62 1-2
Full blooded	70.
Washed on the back before shearing.	

EXILE.

The Imported Cleveland Bay, will take ten Mares this season more than the proprietor's. He is rising two years old, and is now about 15½ hands high. It is the cross of this breed of horses with the blooded mare, that produces the old English Hunter. Thirty dollars, which must be brought with the mare, is the price of covering. There is no pasturage, but grain will be furnished at the neighbourhood price.

GEORGE HAUPT, Manager.

TUSCARORA, near Buckley's town, }
Frederick County. }

Printed every Friday at \$4 per annum, for JOHN S. SKINNER, Editor, by JOSEPH ROBINSON, at the N. W. corner of Market and Belvidere-streets, Baltimore, where every description of Book and Job Printing is executed—Orders from a distance for Printing and Binding, with proper directions, promptly attended to.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL. III.

BALTIMORE, FRIDAY, APRIL 20, 1824.

NUM. 4.

HORTICULTURE.

From the Edinburgh Review.

THE TRANSACTIONS OF THE Horticultural Society of London.

VOLS. I. II. AND III.

The original state of most of those vegetables which occupy the attention of the horticulturist is unknown; and we are still ignorant of the native country, and existence in a wild state, of some of the most important of our plants, such as wheat, &c. We know, however, that improved flowers and fruits are the produce of improved culture, and that the offspring in a greater or less degree partakes of the character of its parent. The Crab has been thus converted into the Golden pippin; and many excellent varieties of the Plum boast no other parent than the Sloe. Yet, till lately, few experiments have been made, the objects of which have been new productions of this nature; and nearly every ameliorated variety appears to have been the offspring of accident, or of culture applied to other purposes: An extensive field of discovery is still therefore open to the scientific horticulturist. Societies for improvements in domestic animals, and all branches of agriculture, have been long since founded; but it was not till within these few years that the London Horticultural Society was established, for the encouragement of Gardening. Judging from the past exertions of this Society, we may hope that in a very short time we shall have to record improvements and discoveries of considerable importance: as, till within a few years, Horticulture was left to the common gardener, who, in general implicitly followed the routine of his predecessor.

Fruit, as an article of general food in this country, is comparatively used in very small quantities. Yet it is well known, that in the great manufacturing towns, in those seasons when it has been abundant, the inhabitants have been far from healthy. Of the different varieties cultivated for common purposes, most are of inferior quality, and the produce of exhausted or unhealthy parents: Hitherto little care has been taken (except in the gardens of the rich) to procure the better sorts of fruit-trees, or to renew the worn out trees which so generally incurber the gardens of our cottagers. A good sort, however, is as easy of cultivation as an austere or barren variety; and one of the principal benefits to be derived from the establishment of the Horticultural Society, is the distribution of scions of new varieties, as well as of the scarcer sorts already known. Much in this respect has been done; already the taste for horticulture has increased; and the spirit of liberality, and the desire of communication, is rapidly taking place of the mean and selfish desire of concealment so prevalent amongst collectors and virtuosi of all descriptions.

As an article of luxury, much fine fruit is produced in this country; but owing to the little attention which has been paid to the mode of raising it, and the small and uncertain demand for it when produced, it is one of the most expensive articles at the table: yet perhaps there are few luxuries so sought after by our countrymen on the Continent; and, amongst their estimates of the comparative difference of cost, none seems to surprise them so much, as that of the prices of fruit in England and in France. Every one who has been on the Continent returns with stories of the number of peaches and pears purchased in France for a franc; or of the still larger quantities of figs and grapes procured in Italy for the same price. Our

climate forbids us to hope to rival our more fortunate neighbours in the growth of out-doors fruit; yet much is to be expected from the production of more hardy varieties, which will better withstand the chilling effects of our tardy springs and ungenial summers; and also from the improved and more economical construction and management of our forcing-houses. By some it is conceived, that the coldness and the dampness of our climate render fruit an unfit article of food. To this we do not agree. Others also may have an objection to any diminution in the quantity of roast beef eaten by John Bull, lest any alteration should take place in his national character; but we are willing the experiment should be tried, leaving these alchymists in the mean time to the undivided enjoyment of their roasted crabs and sloes. It may be observed, that the introduction of fruit as an article of consumption amongst the poor, is not now likely to diminish their quota of roast beef:—the poor-laws, the taxes, our wars, and the 'transition state' from war to peace, have effectually done that long ago.

The Horticultural Society has a garden in the vicinity of London, established solely for the purpose of experiment; and from this much useful information has been already procured. In France agriculture is considered to have derived considerable advantages from the establishment of the *Jardin des Plantes*; and more than equal advantages may be expected to arise in this country, where the cultivators are in general much more enlightened, and always prepared to introduce improvements of every kind.* We have chosen the Transactions of the Horticultural Society for notice, that we may lay before our readers some of the modern improvements in Gardening: in doing which, we shall pursue no particular plan; but select from the different volumes before us, those parts which we think will be most amusing.

I. We have already had occasion to notice the two papers of *Jr. T. A. Knight*, (the President of the Society), on the motion of sap in trees; † and the result of this was, 'that the sap is absorbed from the soil by the bark of the roots, and carried upwards by the albumen of the root, trunk, and branches; that it passes through the central vessels into the succulent matter of the annual shoot, the leaf stalk, and leaf; and that it is returned to the bark through certain vessels of the leaf stalk, and descending through the bark, contributes to the process of forming the wood.'

The work before us contains several curious papers by the same author, on the subject of Vegetable Physiology, and some ingenious applications of the result of his experiments to the practical purposes

* We are sorry to be compelled to remark, that the Royal Gardens at Kew partake of none of the liberality of the Experimental Garden of the Horticultural Society.—Not a single plant raised there is distributed—all access is denied, except the liberty to run through the gardens at the *pas de charge*, with a labourer at your heels. The great misfortune however is, that these gardens being considered as the public botanical gardens of the kingdom, all seeds of rare plants, &c. are sent there, and are therefore lost to the public.—But, fortunately, the Horticultural Society is not within the withering and baneful influence of Government Patronage; and it will, we hope, therefore flourish. If a ministerial member could ask of Lord Sidmouth the appointment of the gardener, the secretary, or the very porter or housekeeper to the Society, we should expect little good to arise from its institution, except to those who enjoyed the salary.

† Vol. V. p. 92.

of horticulture. All plants have a tendency to adapt their habits to the climate in which art or accident places them. Thus the Pear, which is probably a native of the southern parts of Europe, has so naturalized itself in Britain, as in some instances to ripen its fruit in the early part even of an unfavourable summer; and the Crab has, in the same manner, adapted its habits to the frozen regions of Siberia; but either of these fruits imported in their cultivated state from happier climates, are often found incapable of acquiring maturity, even when trained to a south wall.

As the pear and crab tree have acquired the powers of ripening their fruit in climates much colder than those in which they are placed by nature, ground is afforded (observes Mr. Knight) to expect that the vine and the pear tree may be made to adapt their habits to our climate, so as to ripen their fruits without the aid of artificial heat, or the reflexion of a wall, though hitherto but little has been done to learn the mode of culture best calculated to produce these changes: But the experiments of that gentleman already show, that as fine varieties, or nearly so, of fruit, may be raised in this country, as any which have been imported.

Variety is the constant attendant on cultivation; and, in the offspring, is constantly seen, in a greater or less degree, the character of the parent from which they spring.

Early maturity and hardness are the two qualities which the cold and unsteady climate of England render most desirable in the production of new varieties. If two plants of vine were obtained from cuttings of the same tree, and placed during successive seasons, the one to vegetate on the banks of the *Rhine*, the other on those of the *Nile*, and both subsequently transplanted in early spring to a climate similar to Italy, that which had adapted its habits to a cold climate would instantly vegetate, whilst the other would remain torpid. The same occurs in our hot-houses.

A plant accustomed to the temperature of the open air will, on being introduced into a hot-house, vegetate strongly in December, whilst a plant sprung from a cutting of the same stock, but habituated to the temperature of the stove, remains apparently lifeless. The powers, therefore, of plants habituated to cold climates, are more easily brought into action, or more excitable; and as every quality in plants become hereditary, when the causes which first gave existence to these qualities continue to operate,—it follows that their seedling offspring have a constant tendency to adapt their habits to any climate in which art or accident places them. But the influence of climate will depend probably less on the aggregate quantity of heat in each country, than its distribution in each season. Thus, the aggregate temperature of England, and those parts of Russia that are under the same parallels of latitude, probably does not differ very considerably; but in the latter, the summers are exceedingly hot, and the winters intensely cold. In the spring, great degrees of heat suddenly operate on plants which have been exposed to intense cold, in which excitability has been accumulating during a long period of almost total inaction, and the progress of vegetation is consequently extremely rapid.

These principles and facts are the grounds on which Mr. Knight commenced his attempts to produce trees which should ripen their fruits earlier than usual. An apple tree was trained to a south wall, and the branches were in the winter detached and removed to as great a distance from it as their stems would admit, in order that the greatest quantity of excitability might accumulate by the inaction of the tree; and, in the succeeding spring, when the flower

buds began to appear, the branches were again trained to the wall; the blossoms soon expanded, and produced fruit which early attained perfect maturity; and the seeds from their fruits afforded plants which, partaking of the quality of the parent, ripened their fruit very considerably earlier than other trees raised at the same time from seeds of the same fruit which had grown in the orchard: of this, of course, must be considered as a confirmation of the truth of Mr. Knight's theory. Nearly every plant, the existence of which is not confined to a single summer, admits of two modes of propagation, viz. by division of its plants, and by seed. By the first, an individual plant is divided into many, each of which, in its leaves, its flowers and fruit, permanently retains, in every respect, the character of the original stock; no new life is generated; and the graft, the layer, and cutting, appear to possess, in a great degree, the youth and vigour, age or debility, of the plant of which they once formed a part. No permanent improvement, therefore, can be derived from a graft or cutting, which is but a continuation of the parent tree. On the contrary, seedling plants of every cultivated species sport in endless variety, and it is by a selection from these only, that new and improved varieties of each species of plant or fruit can be looked for.

11. The progressive influence of decay upon old varieties of fruit-trees is now admitted; and the general law of Nature seems to be, that no living organized substance shall exist beyond a limited term. The diseased appearance of young grafted trees, particularly of the golden pippin, strongly confirms this position, although we are not willing to suppose that, like the supplemental noses of Talacotius, the grafts are to drop off the stocks on the death of the parent tree. All reasoning from analogy, however, confirms us in the opinion, that it is impossible to continue, by grafts or buds, any variety *ad infinitum*. Mr. Knight is a strenuous advocate for this hypothesis: though we think there are some points of considerable difficulty to be got over. There are many well known varieties of trees which have been cultivated in this country for a very considerable time, such as the rose, the elm, &c. without any apparent loss of vigour. These, we however are aware are propagated by an extension to the root; and this fact Mr. Knight seems to consider as likely to insure grafts a longer continuance of vigorous existence. Mr. Williamson, in a paper now before us, has in some degree controverted this position, that the cause of the diseased appearance of young grafted trees arises solely from the grafts being taken from old and decayed stocks. He states that, in the course of a few years, several young trees, which had been raised from seed, began to exhibit the same diseases, and to be affected by them in a greater degree than many of our older varieties; and that it is therefore evident that *old age* was not the only cause of these appearances. Mr. W. ascribes the premature decay to the supposed diminution of the warmth of our summers. As a confirmation of this, it is to be remarked, that the golden pippin, which with us has become a shy bearer, in France, where the climate is warm, is still considered as a very productive tree. Without entering farther into the discussion of the question, there can be no doubt of the fact, that several of the older varieties of our fruits have been gradually decaying; and we owe principally to the scientific exertions of Mr. Knight, the introduction of many new and excellent varieties, which supply the loss of the old; and, from the spirit which has arisen, every season will no doubt continue to increase our stock. Mr. Knight's theory, he conceives, is confirmed by *Columella*, who seems to have known that a cutting of a bearing branch did not form a young tree; for, speaking of the cutting of the vine *Senaria* (he says) *optima habetur à lumbis, secunda ad lunaris tertio summi in vite lecta, quæ celerissime prævalent, et sunt feraciora—sed et quam celerissime præsecent*.

The inuring plants of warmer climates to bear, without covering, the frosts, the ungenial springs, and cold summers of this country, is a subject of considerable importance to the horticulturist. Little hitherto has been done in this respect with trees, be-

cause in general the propagation has been effected by cuttings or layers from the parent plant, which have, therefore, in a great measure, retained its original habits; and we are now probably growing in our gardens the identical Laurel introduced by 'Master Cole, a merchant at Hamstead,' some years before the year 1639, in which old Parkinson published his *Paradysus terrestris*.

Most of our present wall trees are merely continuations, by grafts, of trees raised in a warmer climate; and although it is not probable that either near London or Edinburgh the peach tree will ever be brought to bear fruit so perfect and so delicious as that which is ripened in warmer climates, much may be expected from the production of new varieties, raised in the manner suggested by Mr. Knight's experiments, to procure early fruiting apples, and which shall have the habit of enduring our rougher climate. It is probable, observes Sir Joseph Banks, that wheat, now our principal food, did not bring its seed to perfection in this country till hardened to it by repeated sowings; and though some spring wheat from *Gauzarat*, which was sowed by him, eared and bloomed with a healthy appearance, many ears were, when ripe, without corn, and few brought more than three or four grains to perfection. Some seeds of *Zizania aquatica* were sown in a pond: the first crop produced strong plants and ripe seeds, the produce of which, however, was in the next year weak, and not half the size of the parent plants; but in each succeeding year they grew stronger, and in a few years attained their full size. Thus a plant, at first scarcely able to bear the cold summer of England, in fourteen generations became as strong and as vigorous as our indigenous plants.

111. The creation of hybrid or mule productions, from two plants of distinct species of varieties, by fecundating the blossom of one with the farina of the other, is also one of the ingenious devices adopted by Mr. Knight, in order to obtain varieties of fruit, partaking of the different qualities of the two parent plants. Mr. Herbert (Vol. IV. Part I.), as far as we can understand him, is persuaded that, by such intermixtures, new species may be created amongst vegetables, capable of continuing a distinct race by the natural descent of an unadulterated progeny to an indefinite extent, and without reverting to the single form of either parent plant. It is impossible to conceive any thing more improbable than such a position; and we entirely concur with the opinion intimated on this point in the *Danubian Register* (Vol. III. p. 195.), 'that no truly hybrid plant, under any circumstances, will continue an unadulterated descent through seeds beyond a very limited number of degrees; and that the less complete productions of this kind, such as take place between remarkable varieties of one species, revert to the single likeness of either one or the other parent, or assume new appearances in endless vicissitudes.'

Several hybrid apple trees, the produce of the Siberian crab, and the richest of our apples, have been the result of Mr. Knight's experiments; and which while partaking of the hardness of the Siberian crab, and ripening in cold and exposed situations, yet possess the fine qualities of the other parent. In some, the varieties inherit the character of the male, and others of the female parent, in the greatest degree; and from some varieties of fruit, particularly the golden pippin, a better copy was obtained by introducing the farina into the blossom of another apple, than by sowing the seed of it. The excellent variety called the Downton pippin, was obtained from the farina of the Golden, and the female flower of the Orange pippin.

We extract from the *Pomona Herefordiensis* the account given by Mr. Knight of the course he adopted in his experiments.

'Preparatory to these experiments, many varieties of the apple were collected, which had been proved to afford, in mixture with each other, the finest ciders. A tree of each was then obtained, by grafting upon a Paradise stock; and these trees were trained to a south wall, or, if a Siberian crab, to a west wall, till they afforded blossoms; and the soil in which they were planted was made of the most rich and favoura-

ble kind. Each blossom of this species of fruit contains about twenty stamens or males, and generally five pistils or females, which spring from the centre of the cup or cavity of the blossom. The males stand in circle, just within the base of the petals or flower leaves, and are formed of slender threads, each of which terminates in a small yellow ball or anther. It is necessary in these experiments, that both the fruit and seed should attain as large a size, and as much perfection, as possible; and therefore a few blossoms only were suffered to remain upon each tree, from which it was intended to obtain seed. As soon as the blossoms were nearly full grown, every male in each was carefully extracted—proper care being taken not to injure the pistils or females; and the blossoms, thus prepared, were closed again, and suffered to remain till they open spontaneously. The blossoms of the tree where variety was proposed to make the male parent of the future variety, were accelerated by being brought into contact with the wall, or retarded by being detached from it, so those were made to unfold at the required period; and a portion of their pollen or farina, when ready to fall from the mature anthers, was, during three or four successive mornings, deposited upon the pistils of the blossoms, which, consequently, afforded seed. It is necessary, in this experiment, that one variety of apple only should bear in unmutilated blossoms; for, where other varieties are in flower at the same time, the pollen of these will often be conveyed by the bees to the prepared blossoms; and the result of the experiment will, in consequence, be uncertain and unsatisfactory.

'Every seed, though many be taken from a single apple, will afford a new and distinct variety, which will generally be found to bear some resemblance to each of its parents. Examples of this are presented in the Grange apple and Downton pippin, and in the Foxley apple and Siberian Harvey.

'After varieties are thus formed, the operator has still to wait long before he can estimate the success of his labours. A seedling pear tree does not often bear fruit till it is ten, and sometimes not till it is 16 to 18 years old; but a seedling apple tree will generally produce fruit at six or seven years old, and sometimes even at four, when either of its parents has been the Siberian Crab. The success of the experiment is also still uncertain; many of the new varieties will be worthless; and where the fruits are good, the trees will often prove unproductive, or defective in health and vigour; and the planter must think himself fortunate if, under the best management, fifty seeds afford a single fine variety for the press; though many will probably be above mediocrity.'

IV. Experience shows that the different varieties of vegetables, when long propagated, gradually lose some of the good qualities which they possessed in their earlier stages of existence. About fourteen years, it seems, is allotted to the duration of a variety in a state of perfection; and Mr. Knight has applied the principles before noticed to the production of new and early varieties of the potato. Observing that those varieties which were early, produced little blossom and no seed, he conceived this to arise from the nutriment being chiefly carried away to supply the tuberous roots (or potato) which are produced on runners, and are distinct from the fibrous roots. By destroying the runners, and only permitting the fibrous roots to grow, early blossom and perfect fruit was procured; from which new varieties were obtained, which in a great degree inherited the early habit thus given to the parent plant.

The trouble and the uncertainty, and the length of time which it was supposed was necessary for the production of varieties from seed, are the principal reasons why so little has hitherto been done: but considerable error and prejudice has existed on this subject. In New South Wales, a Peach tree (which arrives at puberty earlier than other fruit) is said to have borne at the end of sixteen months from the planting of the stone. In America, whole orchards of peaches are used for making brandy and feeding hogs; and these are always planted from the stone, and bear at the end of the third year. And a peach

stone planted by Mr. Knight in the middle of February, kept under glass, and frequently supplied with fresh manure, had, in the following autumn, formed blossom buds, capable, as he conceived, of bearing fruit.

V. The construction and form of forcing-houses is an object of considerable importance, and hitherto appears to have been very defective; and two are rarely built alike, though intended for the same purposes. The object is to procure a building in which the greatest possible quantity of space has been obtained, and of light and heat admitted, in proportion to the capital expended.

The introduction of steam, in metal pipes, for the purpose of warming forcing-houses, instead of thick brick flues, and the improvement in the form, which allows of the ripening more fruit in a house built at a smaller price, render it probable that they will become much more common and that larger ones will be built, in which the tropical fruits may be ripened with facility; more especially as a greater and more regularly continued degree of heat may be furnished by steam at a comparatively trifling expense. Already the fruit of the *Grenadilla*, the *Loquat*, and the *Mango*, have been ripened in this country; and it is probable that, at no very distant period, the *Ali*, the *Avocado* pear, the *Flat Peach*, the *Mandarine Orange*, the *Litchi* of China, the *Mongostein*, and the *Durian* of the East Indies, and other valuable fruits, will add to the luxury of the tables of the rich. One year in three has already been saved in the time of fruiting the *Pine*,—and the necessity of the use of tan in its cultivation in a great measure done away with, as stated by the president; and we are led to suppose that the time is at no great distance, when this expensive fruit will be no longer an object of rarity, from the cost of its cultivation.

Considerable difference of opinion exists as to the best form of a forcing-house. It is however evident, that when fruit is to be ripened in the same climate and season of the year, one peculiar form must be superior to every other; and that in our climate, where sunshine and natural heat do not abound, the form which admits of the greatest quantity of light through the least breadth of glass, and which affords the greatest regular heat with the least expenditure of fuel, must generally be the best. The sun, of course, operates most powerfully on the forcing-house, when its rays fall most perpendicularly on the roof; because the quantity of light that glances off without entering the house, is proportionate to the degree of obliquity with which it strikes upon the surface of the glass. Mr. Knight conceives the best elevation for latitude 52. to be that of about 34 degrees.

Hot-houses are comparatively of modern introduction, and were probably little, if at all used in this country, in the beginning of the last century. Lady Wortley Montagu observes, on the circumstance of pine apples being served up in the dessert at the Electoral table at Hanover (1716), as a thing she had never before seen or heard of. Sir Joseph Banks has communicated some curious remarks on the subject of the forcing-houses and the fruits of the Romans, vol. i. 147.

* Pallida ne Cilicium timeant pomaria brumam,

Mordeat et tenerum fortior aura nemos :

Hybernis objecta notis speculorum puros

Admittunt soles, et sine fauce diem, &c.

— Martialis, Lib. viii. 14.

Qui Corcyreii vidit pomaria regis,

Rus, Entelle, tux prestat ille domus.

Invida purpurens uxor ne bruma racemos,

Et gelidum Bacelli munera frigus edat;

Conditâ perspicua vivit vindemia gemma,

Et tegitur felix, nec tamen uva latet.

Fœmineum lucet sic per bœmycinæ corpus ;

Calculus in sidere sic numeratur aqua.

Quid non ingenio voluit natura licere ?

Autumnum sterilis ferre jubet hiems.

— Ibid viii. 68.

On the first Epigram Sir Joseph remarks, that it in

all probability describes a peach-house; and the word *Pallida*, which is meant as a ridicule on the practice, gives reason for this supposition; as we now know, that peaches grown under glass cannot be endowed either with colour or with flavour, unless exposed by the removal of the lights whilst the fruit is ripening; and if this is not done, the best sorts are pale, green, and tasteless when ripe.

The second Epigram more plainly refers to a grape-house: contrived however, probably, for securing a late crop, rather than as a forcing-house; and the last line leads to this opinion.

Pliny also tells us, that Tiberius was fond of cucumbers, and had them in his garden throughout the year, by means of *specularia* (stoves), where they were grown in boxes, and wheeled out in fine weather.

Theoretical writers on vegetation as well as gardeners, are apt to transfer the feelings of animal life to plants, whence arises the recommendation of hungry soils and cold situations for nurseries, seeing how agreeable it is to go from worse to better—and this feeling amongst gardeners has led to a mode of treatment of plants in forcing-houses directly contrary to nature—and as they like a warm bed in a cold night, and fresh air in a hot day, they are apt to treat their plants as they would wish to be treated themselves. But this is contrary to the mode of existence of the plants in a state of nature—and Mr. Knight conceives the consequence of this excess of heat during the night, in all cases injurious to the fruit-trees of temperate, and not at all beneficial to those of the inter-tropical climates.

In Jamaica, and other mountainous islands of the West Indies, the air upon the mountains becomes soon after sun-set, chilled and condensed; and, in consequence of its superior gravity, descends and displaces the warm air of the valleys; yet the sugar canes are not injured by the sudden decrease of temperature. It must, on consideration, be obvious, that the more nearly nature in its best climates and most favourable seasons is copied as to temperature, the more perfect will be the production. As yet, according to the common practice, there is hardly a gardener who does not imitate, as he supposes, the cool evening dews of nature, by sprinkling his flues with water, and filling his house abundantly with steam—the one in fact resembling the sudden chill of the shower bath and the latter that of the hot-vapour baths of Russia.

Mr. Knight, in his peach house, reduced the temperature to the natural state of the air during the night, except when there was an appearance of frost, and every evening sprinkled his peach-trees with abundance of water; and he states, that his fruit blossomed, set, and ripened more successfully than he had ever experienced it. Although the succulent shoots of trees always appear to grow more rapidly on a damp heat during the night, it is rather an elongation than growth. The spaces between the bases of the leaves, indeed, become longer, but no new organs are added; and it is in fact only the quantity of material extended to a greater length. Another of the ill effects of the high temperature during the night is, that it exhausts the excitability of the tree much more rapidly than it promotes the growth, or accelerates the maturity of the fruit, which is, in consequence, ill supplied with nutriment at the period of its ripening, when most nutriment is probably wanted.

VI. Sir Joseph Banks, some time since, published a pamphlet on the Rust or Mildew in Wheat, which we have already noticed; and it contains strong evidence that this disease was a minute parasitic fungus, propagated like other plants by seeds. The evidence, Mr. Knight observes, would I think be sufficient, if the means were ascertained by which the seeds of this species of fungus are conveyed from the wheat plants of one season to those of the succeeding year. This, however, has not been done; and some still consider that the mildew of wheat consists only of preternatural processes, which spring from a diseased action of the powers of life

in the plants themselves. A summary of the various species of fungus are prop. gared by seeds as the least objectionable hypothesis. Mr. Knight observes, it will not be difficult to show that they are sufficiently numerous to account for the ubiquity of the plants they are supposed to produce; and as these apparent seeds are, by their lightness, capable of being every where dispersed by the winds, Mr. Knight from an experiment made by him on a mushroom, conceives that 250 million seeds were produced in 96 hours. He has endeavored to point out some means by which the injurious effects of the common white mildew may be prevented. The secondary and immediate causes to him appear: a want of sufficient supply of moisture from the soil, with excess of humidity in the air; particularly if plants are exposed to a temperature below that to which they have been accustomed. And it is observed, if damp and cold weather in July succeed that which has been warm and bright, without the intervention of sufficient rain to moisten the ground to some depth, the wheat crop is generally much injured by mildew.

I suspect that in such cases, an injurious absorption of moisture, by the leaves and stems of wheat plants, takes place; and I have proved that, under similar circumstances, much water will be absorbed by the leaves of trees, and carried downwards through their abnoxious substance, though it is certainly through this substance that the sap rises under other circumstances. If a branch be taken from a tree when its leaves are mature, and one leaf be kept constantly wet, that leaf will absorb moisture, and supply another leaf below it upon the branch, even though all communication between them through the bark be intersected; and if a similar absorption takes place in the straws of wheat, or the stems of other plants, and a retrograde motion of the fluids be produced, I conceive that the ascent of the true sap, or organizable matter, in the seed vessels, must be retarded, and it may become the food of parasitical plants, which then only may grow luxuriant and injurious.

This is Mr. Knight's view of the subject; and whether correct or not, it is impossible not to see how much good must be derived from inquiries of this nature, pursued with such unremitting care and attention as is bestowed on them by the president.—In some experiments made on the cultivation of the pea (a plant peculiarly subject to the mildew at the latter part of the year,) considerable quantities of water was given to the growing plants, and to the ground before the sowing; and all appearance of mildew was avoided. Several of the more delicate fruits now cultivated in this country cannot be made to produce, unless with the assistance of being trained against a south wall.

VII. The facts observed by Mr. Knight, with respect to vegetable physiology, have enabled him to improve much in the practice of training wall trees, which was irrational and defective—no attention having been paid to the form which the species or variety naturally assumed; and, be its natural growth upright or pendent, it was constrained to take the same form on the wall. From experiments, Mr. Knight inferred that none of the forms in which fruit-trees are generally trained, are those best calculated to promote an equal distribution of the circulating fluids, by which alone permanent health and vigour, and power to afford

* An hypothesis, differing little from his, has been published in the Quarterly Review, respecting the dry rot, or *Boletus Lacrymans* of Linnaeus, in which it is supposed the different kinds of fungus which appear upon decaying timber, are produced by the remaining powers of life in the sap of the unseasoned wood; and that the same kind of living organizable matter which, whilst its powers remained perfect, would have generated an oak branch, will, when debilitated, give existence to a species of fungus. It only requires to pursue this argument, to see its absurdity; which would soon arrive at the conclusion, that a mass of animal matter, as old cheese, might generate a mite—and a larger mass of decomposing animal matter, produce us elephants.

ford a succession of abundant crops, can be given. The principle of his improvements is, to expose a greater surface of leaf to the light, without placing any of the leaves so as to shade the others; and, by selecting the strongest and earliest buds towards the points of the year-old branches, and the weakest and latest near the bases, an equal vigour was thus given to each annual shoot; and when one grew with greater luxuriance by being depressed, and the weaker elevated, they acquired an equal degree of vigour. In France there is an annual publication, called *Le Bon Jardinier*, which contains much useful information on practical gardening; and we trust, before long, that a similar publication will be produced in this country, under the auspices of the Horticultural Society. In addition, however, to the difficulties arising from the climate, the French materially surpass us in several branches of horticulture; and one of their principal means of success is the division of labour, which has not yet been adopted in this country. In France, whole villages are employed in the cultivation of one single sort of fruit; and, consequently, the whole attention of individuals, for generations, is directed to one point only. At *Montreal*, the whole population has been long maintained by the cultivation of peaches,—their sole occupation; and the inhabitants of *A-genteil* derive their chief support from the cultivation of fig-trees. Near the town, are immense fields covered with these trees on the sides of hills facing the south, and in other places sheltered from the north and south-west; and it is at these towns alone, perhaps, that the true management of these delicious fruits can be acquired.

Next in interest to the papers by the President, are those contributed by Mr. Sabine the Secretary, and by the late Sir Joseph Banks, who was indefatigable in his exertions to promote the interests of the society.* We cannot conclude our observations, without recommending that those entrusted with the selection of the papers for publication should in future be somewhat more careful, or at least more sparing in their choice: for though there are many containing useful practical information, yet there is much that might have been omitted; and we confess, that had we, in the early part of our examination, stumbled on some of Mr. R. Salisbury's long papers, or the account of Mr. Seaton's invention of "marked tallies, or garden sticks, accompanied by a plate," it is most probable we should have been deterred from all further progress; in which case, our general readers would have remained ignorant of the Theory of hybrid plants, and the whole mystery of the propagation of apple-trees, whether by seeds or grafts.

* All must regret the recent loss of the late venerable President of the Royal Society. The annals of science do not perhaps afford an instance of a man who so entirely devoted his time, talents and fortune, to the advancement of knowledge. At his entrance into life, succeeding to a splendid inheritance, he turned aside from the paths of pleasure, and the usual pursuits of his age, to become the companion of Cook; and scarcely arrived at manhood, was a sharer of the fame of that illustrious navigator.

The zeal and eagerness with which he pursued all subjects connected with science, continued one of the most striking features of his character; and at an advanced age, and although long suffering under the most painful diseases, the freshness and vigour of his mind, and his interest in those subjects were unabated. His valuable collections, and his unbounded stores of information, were at the service of all. His library (the richest perhaps in Europe on subjects of natural history) was of far more easy access than any other public library in England. His unostentatious readiness to supply the pecuniary wants of scientific persons will, we are persuaded, long live in the memory of many. No one perhaps, in our time, has gained such universal and unmixed admiration and esteem; unconnected with politics or party, he neither trenched upon the interests, nor interfered with the prejudices of any. It will be long indeed before one shall be found capable of filling the vacancy made by his death—*Artium tum utilium, tum elegantiorum iudex et patronus!*

PISÉ,

Or the Art of Building strong and durable Walls, to the Height of several Stories, with nothing but Earth, or the most common Materials. Drawn up and presented to the Board of Agriculture, by Henry Holland, Esq.

[Continued from No. 3, page 21, volume III.]

Of Pisé and its Origin.

CHAPTER IV.

Method of forming the openings for the doors and windows.

The openings for the doors and windows must be left at the time of building the walls. This may be done by placing within the mould either two or one of the heads (such as is represented, Plate I. figure 3 and 4) as may be necessary, wherever the wall is to terminate and the opening commence. They should be made sloping a little, in order to leave room for the frames and sashes.

The exterior decorations of the windows and doors are usually made, by the rich, of stone or brick, and by the poor, of wood, which latter have a bad effect on the appearance of the house, as wood will never unite well with pisé-work; and notwithstanding the greatest precautions, the exterior covering will break and fall off the wood; whereas stone or brick work unite perfectly with the pisé, and retain their plaster, and of course the paint, of which it forms the ground. The chimney-pieces of brick or stone are laid and united with the walls in the same manner as in common buildings; and the flues are also very firmly connected with them, being made of brick-work. But a very particular advantage is, that the apartments may be very handsomely finished, without making any jambs to the inside doors, either of stone, brick, or wood. The finishing of the earthen wall will make jambs unnecessary; and why should the expense of any other finishing be incurred, when the doors may be hung on the grounds, or wainscot of the apartment?

CHAPTER V.

On the effects of beating or compressing earth, cement, or other compositions used in building.

Beating, or compression is used in many different sorts of work; the ancients employ it in making their rough walls; the Italians employ it for the terraces which cover their houses; the Moors for all their walls; the Spaniards, the French, and others, for some of the floors of their apartments. The intent of the ancient architects, when they recommended the building of cement and other compositions used in building, was to prevent them from shrinking and cracking; and it is employed for the same purpose in walls which are made of earth. The beater, by repeated strokes, forces out from the earth the superfluous water which it contained, and closely unites all the particles together, by which means the natural attraction of those particles is made powerfully to operate, as it is by other natural causes in the formation of stones. Hence arises the increasing strength and astonishing durability which houses of this kind are found to possess.

CHAPTER VI.

On the description of compressed earth.

Upon beating a small portion of earth, and weighing it immediately afterwards, it was found to contain thirty-nine pounds and a half; fifteen days after it had lost four pounds and a quarter; in one month; and in fifteen days after that its weight diminished only half a pound. In the space of about forty-five days the moisture was completely evaporated, and its weight was diminished above one-eighth; consequently only one-eighth of the whole mass was occupied by moisture, and this small proportion cannot at all affect the solidity and consistency of the

earth so treated. This experiment is also sufficient to shew the difference between this kind of building, and that vulgar kind, called in England, "mud walling"; the latter cannot be executed without adding a great deal of water, to soften the materials employed, which entirely destroys their consistency; the water, which occupies a considerable space in the mud, leaves, in evaporating, an infinite number of pores or little cavities, and thus the walls become weak and brittle, and incapable of supporting several stories, or such ponderous weights as the beaten earth or pisé can sustain.

CHAPTER VII.

On the height of pisé walling that may be executed in one day.

In one single day three courses of about three feet each may be laid one over the other; so that a wall of earth of about eight or nine feet, or one story high, may be raised in one day. Experience has proved, that as soon as the builders have raised their walls to a proper height for flooring, the heaviest beams and rafters may without danger be placed on the walls thus newly made; and that the thickest timber of a roof may be laid on the gables of pisé, the very instant they are completed.

CHAPTER VIII.

On earth proper for building.

1st. All earths in general are fit for that use, when they have not the lightness of poor lands, nor the stiffness of clay. 2dly. All earths fit for vegetation. 3dly. Brick earths; but these, if they are used alone are apt to crack, owing to the quantity of moisture which they contain. Thus, however, does not hinder persons who understand the business from using them to a good purpose. 4thly. Strong earths, with a mixture of small gravel, which for that reason cannot serve for making either bricks, tiles or pottery. These gravelly earths are very useful; the best pisé is made of them. These general principles may suffice, without overburdening the memory of the reader; and from the following marks may be known, what earths are fittest to be employed by themselves.—When these have been described, it will remain to point out such as must be mixed with others, in order that they may acquire the necessary quality.

The following appearances indicate that the earth in which they are found is fit for building: when a pick-axe, spade, or plough brings up large lumps of earth at a time; when arable lands lie in clods or lumps; when field mice have made themselves subterraneous passages in the earth; all these are favourable signs. When the roads of a village, have been worn away by the water continually running through them, are lower than the other lands, and the sides of these roads support themselves almost upright, it is a sure mark that the pisé may be executed in that village. One may also discover the fitness of the soil, by trying to break with one's fingers the little clods of earth in the roads, and finding a difficulty in doing it; or by observing the ruts of the road, in which the cart-wheels make a sort of pisé by their pressure; whenever there are deep ruts on the road, one may be sure of finding abundance of proper earth.

Proper earth is found at the bottom of the slopes of low lands that are cultivated, because every year the rain brings down the fat or good earth. It is frequently found on the banks of the river; but above all, it is found at the foot of hills where vines are planted, and of all cultivated lands which have much slope. In digging trenches and cellars for building, it generally happens, that what comes out of them is fit for the purpose.

CHAPTER IX.

On the mixture of earths.

As it may sometimes happen that earth of a proper quality is not to be found on the spot where it is intended to build, it becomes of importance to attend to the method of mixing earths; for though the earth, which is near at hand, may not of itself be proper it is very probable that it may be rendered so, by the mixture of a small quantity of another earth, fetched from a distance. The principle on which a mixture must be made is very simple; strong earths must be tempered with light; those in which clay predominates, with others that are composed more of chalk and

sand; and those of a rich, glutinous substance, with others of a poor and barren nature. The degree in which these qualities of the earth prevail, must determine the proportions of the mixture; which it is impossible here to point out for every particular case, but which may be learnt by a little practice. Some easy methods will be described in the next chapter, by which any one may make a trial of the qualities of his earth.

It will not be amiss to mix with the earth some small pebbles, gravel, rubbish of mortar, or in short any small mineral substances; but none of the animal or vegetable kind must be admitted.* Such hard substances bind the earth firmly between them, and being pressed and pressing in all directions, contribute very much to the solidity of the whole; so that well worked earth, in which there is a mixture of gravel, becomes so hard at the end of two years, that a chisel must be used to break it, as if it was free stone.

(To be continued.)

* The pise does not admit any vegetable or animal substances. In mud walls they put straw, chopped hay, hair, flocks, wool, &c. to make the mud adhere to the wood, or laths; whereas the workmen who build in pise are careful to pick out the least straw, or the smallest bit of root which remains in the earth—in short, the pise is a mineral substance imitating stone, consequently, any thing that can slake or rot must be excluded.

For the American Farmer.

Philadelphia, April 4, 1821.

SIR,

You deserve so well of your country for the happy thought of publishing a Gazette exclusively devoted to the cause of the first of employments, for the talents and zeal exhibited in conducting it, and further exertions to aid agriculturists in improvements, particularly in stock; that you have a just claim upon every one who is able to give any information you may desire. I am happy in having it in my power to satisfy your inquiries respecting the Teeswater breed of Cattle, about which and the Holderness, as you observe, much confusion prevails.

It is agreed among British writers on agriculture that they owe the short horns, to the Dutch, and for sometime after they excited attention in England, they bore the name of the Dutch breed; but the precise part of the low country whence they came, the time of their importation, and the name of the importer do not appear. It is known however, that they were first "located" in Yorkshire, and from their being chiefly confined for sometime to the Eastern part of the country, they obtained the name of the "Holderness" breed. Their forms were bad; Lawrence says that "they had long gaunt deep carcasses without adequate substance, placed upon high stilts of the coarsest timber, slow feeders, never fat, and the flesh excessively coarse."* The cows gave a great quantity of thin milk, and hence were much in demand with the cow keepers in the vicinity of London, with whom quantity and not quality is the object. The intelligent breeders must nevertheless have seen something in the form of those beasts, or have witnessed such improvements in their progeny, from accidental or designed mixtures with native stock, as to convince them, that they possessed a plasticity

which would permit the breed to be moulded into better forms than it originally had. Laurence says further, that "the coarseness and size of the northern short-horns, led to the introduction of Norman bulls sometime in the eighteenth Century," and that this improvement commenced in England in the district last named. This cross, without doubt increased the rich quality of the milk, the cattle of Normandy being famous for the richness of that secretion.† Judicious mixtures with other and better formed animals, particularly with bulls from the river Tees, according to Tuke, continued to improve the race until they have reached what may be called the ultimatum of animal perfection. They are models of symmetry, fatten readily, and at three years will weigh with fair keep, as much as other breeds do at double that age, and after a long and expensive process of stall feeding, or extra feed in summer. Much of the high character which this breed has deservedly acquired, was derived from the intelligence and zealous perseverance of Messrs. Robert and Charles Collings, of Bampton, & Kelson, Co. Durham, on the Tees, a river that divides the "north riding," of the county of York through its whole extent from that of Durham. The multiplication and improvement of the breed in their hands, and by others in the same district, gave a name to the variety produced by their care, derived from the river just mentioned; and it is this variety that is now so eagerly sought after in England and Ireland, and to which I have several years since,‡ and more recently called the attention of American improvers. The diffusion of the breed, in the adjoining county of Durham, has stamped it with that name also. In all the crosses and changes to which the original stock have been subjected, the short horns have almost invariably been preserved; a circumstance that shows the distinctive and permanent character of the breed. Thus the way is rendered clear, and there cannot be any longer the least obscurity respecting the various names that are given to the short horned stock. Nor must these names be deemed synonymous, for the peculiar characters of the progressive varieties, for certain reasons are still retained in some districts.—Thus the London Cow-keepers encourage the farmers of Holderness to preserve their large big boned breed, because the cows are profuse milkers, from twenty-five to thirty five quarts being the average produce per day from a single cow. Improvers should be careful to ask for "the improved short horns," when they order any of the breed from England, and be particular in dealing with men of high character, who are known to be attentive in preserving the purity of their blood. Mr. Champion's stock is from Comet the paragon of the stock of Charles Collings. The colour is red and white, often mixed in the most beautiful proportions and forms. The agricultural society of Philadelphia, have two coloured prints taken from portraits of Day's famous Durham Ox, and the Bull Patriot, which show this mixture, and cannot be viewed by an amateur without expressions of delight.

† A lady and gentleman who travelled through France a few years since, and supped on bread and milk, informed me, that they discovered the fact of their having passed through Normandy by the inferiority of the milk, the first night they stopped after leaving that Province.

‡ Archives of useful knowledge, vol 1, 1811.

The great, the important points in this breed are, early maturity, quick fattening, and the disposition to throw the fat and flesh upon those parts of the carcass that sell for most money, while those technically called offal are very small. In my late paper read before the Philadelphia Society for promoting agriculture, which was published in the "National Recorder," of Philadelphia, a weekly paper, on the 24th March last, I have given the weights of several oxen of this breed, belonging to Mr. Nicholson of Gipton, near Leeds, and Mr. C. Champion of Blythe near Bawtry, Nottinghamshire, and to show that those weights are not uncommon, I will furnish a few more. Culley's says that an Ox, five years old, killed at Barnard castle in 1789, weighed, the 4 quarters, 150 stones, and 4½ lbs at 14lb. to the stone—2104½ lbs, his tallow weighed 16 stones = 224 lbs. Another cow (age not given) weighed 150 stone and 3 lbs. = 2103 lbs. with 16 stones of tallow—224 lbs.

A six years old spayed heifer, 132 stones, 16 lbs. = 1854 lbs. Tuke in his "Agricultural Survey of the north Riding of Yorkshre," the country of the short horns, says, that a Cow bred by J. Dowker of Salton, and killed in the spring of 1793, then five years old, weighed, the 4 quarters 90 stone = 1260 lbs. She measured nine feet seven inches round the hind ribs, and two feet 4 inches across the hips.

A heifer, 4 years old, belonging to E. Cleaver Esq.† and killed in 1799, weighed, the four quarters, 90, stone 6 lbs. = 1392 lbs. Tallow 9 stones 8 lb. = 341 lbs.

A five year old hornless cow, bred near Bedale, Yorkshire, weighed 85 stones, = 1190 lbs.

The Durham Ox, a print of which is in the Agricultural Society's room, Philadelphia, weighed alive by computation 2394 lbs. at 6 years of age.

So much for their history and weights. With all the great merits of "the improved short horns," they will I fear be thought not entirely free from faults. The truth is, they must have food; they are most hearty eaters, and justly do they deserve the best pasture that can be given them, for as beasts pay better or sooner for what they eat. They will not fatten or even live on Tobacco stems, or Indian grass, or garlic, or spring sprouts from trees in the woods, or the sparse natural growth of a pine forest, however extensive the "range" may be, and notwithstanding it has been prepared for them, by the happy and ingenious expedient of burning the dead vegetable starvelings on the surface, the growth of the preceding year. Nor will they stand the nibbling and torment of countless myriads of gnats and mosquitoes in a marsh in summer, (for their hides are remarkably thin,) or thrive or preserve their health, if turned out to shift in the winter among dead corn stalks, without a shelter at night. Improvers therefore who intend that the above shall be the fate of the "short horns," had better adhere to the hardy native stock, accustomed to such fare, and of which it is well known, half a dozen cows, will furnish milk enough when "in profit"‡ for a small family for tea and coffee. But give the short horns proper treatment, such as they deserve, keep them in a

§ On Live stock.

¶ One of the reporters employed some years since by the British Board of Agriculture to survey the kingdom

‡ Of which Tuke gives a plate, and copied in Dickson's agriculture, and the "Complete Farmer."

* Laurence on Cattle—what a description! Some of this sort were imported before the American war, into this country, but now, are happily gone.

continued state of improvement and growth while calves, and furnish them with abundant pasture in summer, and good hay and comfortable quarters in the winter, and I will answer for full satisfaction being derived by every one who will make the experiment with them.

I assure you I did not intend to write so long a letter, but when once in the strain, it is difficult to stop. I cannot conclude without saying a few words on the North Devons. The merits of this breed are well known, and properly estimated in England. They are good milkers, and make excellent beef, and the best working oxen of any breed; walking as fast as a horse. Lord Somerville, did all the ploughing of a large farm with them; he and Mr. Conyers,* have given the fullest account of their good qualities. Mr. Coke deserves the everlasting thanks of every true friend to the agriculture of the United States, for his generous present to Maryland of his improved specimens of the breed, and I look forward with pleasure to the time when their descendants shall be diffused throughout the farming districts of the country. No agricultural society, especially of Maryland, ought to meet, without calling to mind Mr. Coke in some way: by drinking his health if the members please, or by annually publishing the state of the stock he sent over, their increase, and the names of those who have their progeny. The last measure ought certainly to be adopted in Maryland.

I hope the farmers of your state will avail themselves of the opportunities which you offer them, to add to their comforts and wealth, by the improvement of their farm stock. The idea of the establishment was a most fortunate one, and two gentlemen will enable you to accomplish, what in Europe has been always done at the expense of Kings. WHAT PRAISE IS DUE TO SUCH GENUINE PATRIOTISM! Your friends will forever be ranked among the most SOLID BENEFACTORS OF OUR COUNTRY.

With my best wishes, for your success,

I am respectfully,
JAMES MEASE.

* Communication, Board Agriculture, London vol. 4.

Ten North Devon cows of Mr. Conyers, produced on an average five dozen pounds of butter per week, in the summer, and two dozen in the winter, or in other words 218 lbs. per cow. His 30 cows in 18/2, averaged an annual profit of £13 14s. or \$60 52, per head.

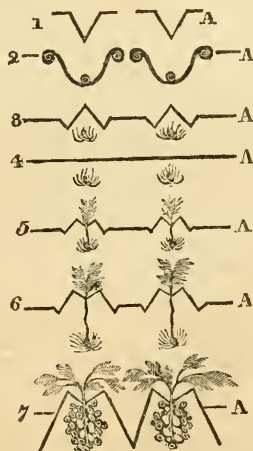
See also the strong testimony in favour of the North Devon, for activity, quick feeding, beef, and milk by Mr. Chandler of Moreton, a well known grazier, who has often obtained premiums at the Smithfield cattle shows.—Archives of useful knowledge, vol. 1, p. 303.

For the American Farmer.

Friend Skinner—Having read in your American Farmer several communications on raising potatoes, and none of them corresponding with my method, and convinced from seven years experience of the superior crops I have uniformly raised has induced me to give you my mode of managing the crop.

I always plough my stalk ground as deep as possible in February for my potato patch, in May I harrow the patch and roll it until it is quite smooth; it is then ready for planting (which I do immediately after planting corn.) I make

drills by a boat with a large plough three at a time only, then drag a log four feet long and 13 inches in diameter with a large chain twisted in a spiral form round the log up and down each drill, the log is square at the end, which throws the mould on each side the drill, the chain rubbing the mould as fine as the covering of a hot bed; by the time these three drills are ready the cart arrives with the dung, which is thrown in the drills and broke and spread evenly in the drill, "the seed (which has been cut two or three weeks, and plaster sprinkled on them when cut," is dropped nine inches apart, and trowl by the boy who drops them into the dung, as soon as the three rows are ready, the plough covers the seed and dung with the fine mould the log threw on each side the drill, the whole patch is thus planted; I have put in an acre in a day with two carts, a loader, one plough, three men and a boy to drop: I pick the best shaped and largest potato for seed and cut them in three or four pieces. I have tried whole potatoes and found no advantage in any respect. I have never measured my whole crop, but from the cart loads, I estimate my average crops 450 bushels per acre; I once planted five bushels of the Nova Scotia blue nose (the first I ever tried of that kind) and had 260 bushels of picked potatoes, and about five bushels of small, since I have planted no other kind for my late crop, being convinced they are the most prolific of eight varieties I tried for three years; the after culture is very similar to earthing and blanching celery, and on this depends the crop, as much as a corn crop would in a dry hot summer. I cannot give you a clear idea without the annexed sketch:



1. Drills made with the plough.
 2. Log and chain, dung and seed.
 3. Covered.
 4. Harrowed level, after the first rain and before the plants are up.
 5. First ploughing.
 6. Second ploughing.
 7. Third ploughing.
- A is the surface of the field before making the drills.

The drills are 4 feet from centre to centre, after the seed are up, as fig. 5th I run a triangle harrow between each drill and throw a very light furrow to the plant with a small plough. Two weeks after harrow again and throw a heavier furrow to the plant as fig. 6th, and before the tops get too large harrow again with a large plough with a thin piece of board fixed to the extremity of the mould board finish the work as fig. 7th. Fifteen large ox cart loads of manure is all I use for one acre and fifteen bushels of seed cut in three or four pieces. I have observed the growth and find the potatoes arranged as fig. 7th. Having dug several hills with my fingers, beginning at the side, and in two seasons have had the potatoes bursting the ground at the surface when the lowest was 11 inches underneath; after the first frost, I mow the vines and haul them off to my compost heap; and when the ground is dry take up the crop, by ploughing a furrow from each side of the row, and turning the middle over, my experience of the whole crop, from hauling the manure till the potatoes are in the cellar, is 15 dollars per acre, and have had 265 bushels on $\frac{1}{2}$ of an acre—to illustrate the advantage of often stirring the ground during the growth of scutlets in a dry season, I planted in 1816 two cabbage beside each other, they were from the same seed bed and each manured with an equal weight of old hot bed dung—one plant I had every evening, the other when the principal crop was hoed; in November they were weighed, one 24lbs. the other 43lbs. of the flat dutch kinds; other experiments prove that often working the ground, will double any crop in a dry season.

THOMAS MASSEY.

Roseville, Delaware.

MILLET,

The various kinds, with remarks on—from a friend in Virginia April 9th, 1821.

TO THE EDITOR.

DEAR SIR—

In reply to your enquiry concerning the cultivation of Millet in this part of the country, and whether there are more kinds than one, I can state nothing with certainty, except that it has never been raised here as a crop. Several kinds of grain are sometimes made on a small scale, which appear to be varieties of Millet, but so loose and contradictory are the accounts that I have been able to obtain on the subject, that I remain in doubt whether any of them can properly come under that name. The varieties referred to are, 1st. White Millet, or Guinea Corn, with a naked white grain.—2d. Black Millet or Chocolate Corn. 3d. Red Millet or Broom Corn, resembling the preceding, except that the grains are more thinly scattered, and are covered with a red instead of black husk; and 4th, the plant producing the inclosed spike. None of these grains are the same with the Millet raised in Pennsylvania, of which a few bushels were lately brought to Petersburg. Only two varieties of Millet are mentioned in Miller's Gardener's Dictionary, neither of which agrees precisely with either of those known here, though his

description of that kind, which is so important an article of food in Africa, suits the general appearance of the White Millet in every respect, except the superior size of the latter plant, and the different colour of the grain. Of the botanical description which he gives, I know nothing. If there were 6 or 7 varieties of Millet, it is not probable that only two would be spoken of in so comprehensive a work; and yet if our Guinea corn is one of them, there can be but little doubt but that the other three kinds belong to the same family. The plant from which the inclosed seed were obtained, grew in Petersburg, and from its size and the rapidity of its growth, promised to prove next in value to the celebrated Guinea grass, which it much resembles. A closer examination, however, satisfied me that it is a *grain* instead of a grass: for there is not more difference between it and white millet, than between the smallest and largest kind of Indian corn.

White millet would be a very productive and valuable crop, but for its disposition to rot, if not gathered soon after ripening; and the heads come to maturity in succession, so as to prevent the whole crop being secured at one operation. Black millet is not liable to that objection, and appears to be equally productive. The small quantity made by me last year, was carelessly allowed to be exposed to the weather until January, and is not at all damaged. This is the kind, I presume, of which Dr. Coleman gives so satisfactory an account, (in your 47th No.) both with regard to its productiveness and nutritious qualities. If the hardness of the husk does not render boiling or grinding indispensable, and if the stalk and blades are equal to those of corn, it must be superior to all other crops for feeding stock.

This certainly is not a subject of the highest order—but by ascertaining and informing us, to what plant the name of millet properly belongs, and of its value and cultivation, you may probably serve others among your readers besides myself, and will at least remove something of the confusion which reigns in our agricultural nomenclature. Yours respectfully, &c.

EDMUND RUFFIN.

For the American Farmer.

RECIPES.

[TRANSLATED FROM THE FRENCH.]

How to make a mattress that shall not sink in the middle, or become hard by the weight of the body.

To produce this effect, make your mattress twice as long as usual—double it—sew the two ends together, and arrange the stuffing where it joins the same as the rest. It will then have the form of a roller or double towel, which may be folded forever and will always remain doubled and folded. When you put it on the bed it will be the same as two mattresses, one over the other. It takes no more ticking or stuffing for this double mattress, than for two single ones.

The advantage of this invention is, that every time the bed is made, you may easily roll the mattress so that the part which was under the body, may be placed at the head or feet; sometimes above, and sometimes below, and succes-

sively every part of the mattress made to pass to those places where the compression is greatest. You may even from time to time, turn it inside out like a stocking, and by this means produce other changes. A mattress made in this manner, lasts much longer and is much easier to sleep on than one made in the usual way.

A certain method of Securing Horses from Flies and all other Insects.

It consists in rubbing them every morning with walnut leaves.

Extract of a letter from a correspondent of great observation, dated,

RALEIGH, April 6th, 1821.

DEAR SIR,—Conformably to a request in the last Farmer, I send you some melon seeds, obtained, my wife informs me, from the best melon she ever saw; a very large blue skinned one, brought to market here last autumn while I was in the Chickasaw country.

I would observe here, that melon seeds ought every year to be sent from the south, northwardly. In Massachusetts, melons from native seeds are small and insipid, but from North Carolina seed are five or six times larger, and of greatly superior flavour. I am in the habit of sending seeds to my friends there, annually. They deteriorate rapidly, and the third year, exhibited no evidences of their superior stock.

Corn, (Maize) on the other hand, should be sent from the North, Southwardly. The product is more grain and less stalk. The peregination of other seeds might improve their products, but I have experienced only of these."

MIDDLEBURG, April 12th, 1821.

Extract of a letter—Information Wanted, Tin Roofs, &c. &c.

As every thing relating to domestic economy seems to come within your province, I should esteem it a favour if you would ascertain and communicate to me, the cost of roofing buildings with tin. I have understood that this plan of covering houses, prevails in some places, and is considered cheaper than wood. The tin is painted on both sides to prevent rusting. My object is to ascertain the cost by the square foot, so as to enable me to compare the expense of such covering, with a shingle roof—if the difference in first cost is not great, I should, on account of the greater security against fire, as well as for the durability of the materials, give a preference to tin. A gentleman from Staunton, Virginia, informed me that some experiments had been made at that place, and the opinion was expressed that a tin roof would cost but little more than a roof of shingles. He, however, could not speak with certainty, but understood that the operator there, had derived his knowledge from Baltimore, or some of the large commercial towns to the north or east.

I am, Sir,

Your obedient serv't.

From a new volume of "Poems, by one of a Family Circle."

The motto of the following poem is "Si desieris perire;" the description which it contains of a young

woman who is supposed to have died broken hearted, is touched in many parts with uncommon tenderness.—*British Critic for December.*

"He seemed to love her, and her youthful cheek
Wore for a while the transient bloom of joy;
And her heart throbbed with hopes she could not speak,
New to delight, and new the ecstacy,
He won that heart in its simplicity,
All undisguised in its young tenderness;
And smiling, saw that he, and only he,
Had power at once to wound it or to bless.
She gave to him her innocent affection,
And the warm feelings of her guiltless breast;
And from the storms of life she sought protection,
In his dear love, her home of earthly rest;
In this sweet trust her opening days were blest,
And joyously she hailed her coming years;
For well she knew that even if distress,
There would be one kind hand to dry her tears.
He left her and in trouble she awoke
From her young dream of bliss; but murmured not
Over her silent sufferings, nor spoke
To any one upon her cruel lot.
You would have deemed that he had been forgot,
Or thought her bosom callous to the stroke;
But in her cheek there was one hectic spot,
'Twas little—but it told her heart was broke.
And deeper and more deep the painful flush
Daily became; yet all distress seemed o'er
Save when the life blood gave a sudden rush,
Then tremble into silence as before.
At once too proud, too humble to deplore,
She bowed her head in quietness;—she knew
Her blighted prospects could revive no more;
Yet was she calm, for she had Heaven in view.
She loved, and she forgave him—and in dying,
She asked a blessing on his future years;
And so she went to sleep; meekly replying
Upon that power which shall efface all tears.
Her simple turf the young spring flow'ret wears,
And the pale primrose grows upon her tomb;
And when the storm its simple blossom tears,
It bows its head—an emblem of her doom!

THE FARMER.

BALTIMORE, FRIDAY, APRIL 20th, 1821.

TO CORRESPONDENTS.

Numerous communications are on hand, and will appear as soon as possible. We return our sincere thanks to those, whose correspondence, has enabled us to give practical information on useful subjects—and take this occasion to repeat, that those, especially who send us communications, have a right to call for information on any agricultural subject—and we have experienced a very laudable readiness, to answer to enquiries which have been thus propounded.

As many of the subscribers to the Farmer, residing in the country, have no agent to whom they can send the second volume to be bound, they are at liberty to command the services of the Editor in this respect, who will take pleasure in serving them.

Cattle Show and Fair, for the exhibition and sale of all kinds of Live Stock, Agricultural Implements, &c. &c. to be held on the 7th and 8th days of June next, at the MARYLAND TAVERN, four miles from Baltimore, on the Frederick Turnpike Road, to commence at 9 o'clock, A. M. on each day

The Committee appointed on behalf of the "Maryland Agricultural Society," to make arrangements for a Cattle Show and Fair, for the sale of Live Stock and Agricultural Implements, have resolved that said Show and

Fair be held at the time and place above mentioned, and that the following premiums be offered:

FOR HORSES.

- For the Stallion best calculated to improve our stock of coach horses, a silver pitcher valued at \$30 00
- For the Stallion best calculated to improve our stock of horses for the saddle, and for general farming purposes, a pair of silver goblets valued at 20 00
- For the best Brood Mare, a butter boat valued at 10 00

ASSES AND MULES.

- For the best Jack-Ass, a silver Can valued at 10 00
- For the best Jennett do. do. do. 10 00
- For the best Mule of any age, a pair of silver goblets valued at 20 00

NEAT CATTLE.

- For the best Bull, not less than two years old, a pair of silver goblets, valued at 25 00
- For the best Milch Cow, a pair of silver tumblers, valued at 20 00
- For the best yoke of working Oxen, six table spoons, valued at 25 00
- For the best Bull Calf, under two years old, a silver Can valued at 10 00
- For the best Cow Calf under two years old, a silver Cream Pot valued at 10 00

HOGS.

- For the best Boar of any age, a silver goblet valued at 10 00
- For the best breeding Sow, do. do. do. 10 00

SHEEP.

- For the best Ram of the pure Merino breed, a silver Can, valued at 10 00
- For the best of any other breed, a silver butter knife, valued at 5 00
- For the six best fat weathers—mode of feeding to be communicated—a silver Can, valued at 10 00

The above premiums will be awarded only for animals bred within the State of Maryland, or the District of Columbia.

Four premiums are reserved to be distributed at the discretion of the society, for objects not embraced under the above specifications, and which may yet appear worthy of distinction.

It is understood that whenever, merely from the want of competition, any of the claimants might be considered entitled to a premium, yet if, in the opinion of the judges, the objects so offered possess no particular merit, the Judges shall have a right to withhold such premium, and the society may confer it in any other case at their discretion.

Persons intending to offer any species of Stock for premium, are required to give notice thereof on or before the 6th day of June, either personally or by letter, addressed to JOHN S. SKINNER, Esq. Post-Master, Baltimore, specifying the premium for which they propose to contend. The applicants will be held to a rigid compliance with this rule. The examination of every species of Stock by the judges, to be then appointed, will take place on the first

day of exhibition, and the premiums be declared and delivered on the second day.

All persons, whether members or not, are at liberty to bring Stock, such as horses, milch cows, working oxen, fat bullocks, hogs, sheep, &c. &c. either as subjects for premium, or for sale, private or public—and an auctioneer will be employed by the Society to dispose of such as may be offered at public sale.

CHARLES RIDGELY, OF HAMPTON,

Chairman of the Committee of Arrangement.

P. S.—The Society request the favour of all Editors of papers in the State of Maryland, the District of Columbia and the adjoining States to give the preceding Notice a few insertions.

* * The Horses, CLIFTON and YOUNG TOM, and the Jack SANCHE, will stand also at Mr. Caton's Mill, 9 miles from Baltimore, on the Falls Turnpike Road—of the days, &c. &c. a more particular notice will be given in our next.

* * The index and title page to the second volume of this journal, are in the hands of the printer, and will be ready by this day week.

* * All postmasters are respectfully requested to return, accompanied with a line of information, all numbers of this paper which are not taken from their offices by the persons to whom they are addressed.

For the accommodation of persons in the City and its immediate vicinity—the Tieswater, Devon and Alderney Bulls, will be moved in from the stock farm to the precincts of the town, where they will be let to cows every other week, during the season—particulars hereafter.

Subscribers to the AMERICAN FARMER can have either of the volumes well bound for 75 cents, by J. Robinson, Printer, corner of Market and Belvidere-streets.

AGRICULTURAL LIBRARY.

RARE, VALUABLE AND CHEAP AGRICULTURAL BOOKS, FOR SALE BY

EDWARD J. COALE.

Opposite the Post-Office, Baltimore.

Kames' Gentleman Farmer.
Farmer's Calendar, or Monthly Remembrancer for all kinds of Country Business, &c.
Peters' Agricultural Enquiries.
Domestic Encyclopedia.
Agricultural Prize Essays and Transactions.
Complete Farmer.
Young's Agricultural Tours, North, South and East—9 volumes.
Young's Travels through France—2 vols.—4to.
BATH PAPERS.
The Complete Grazer, or Farmer and Cattle Dealer's Assistant. 3d edition.
The Farmer's Guide in Stocking Farms.
Day's Agricultural Chemistry, with Plates.
Marshall's Rural Economy.
Somerville's Board of Agriculture.
Register of Arts.
Darwin's Phytologia.
Epitome of Forsyth on Fruit Trees.
Memoirs of the Agricultural Society of Philadelphia—4 volumes.
Nicholson's Farmer's Assistant.
Taylor's Arator.
Beaton's New System of Cultivation without lime, dung or summer fallows—illustrated by engravings.
The above books will be sold at very reduced prices—and with a discount, if purchased for Agricultural Societies.

JOSEPH P. CASEY,

SEEDSMAN, &c. No. 2, Hanover-street, (next to Barnum's late Gadsby's Hotel.)

Returns his sincere thanks to his friends and the public, for the very liberal support he has received since his commencement in business, and informs them he has received from the Belvidera, from Liverpool, his general supply of spring Seeds, &c. &c.—and per different vessels from the northern states, a variety of native seeds, in particular, SHAKERS SEEDS—all of a superior quality, the growth of 1830—From Casey's knowledge and experience of more than twenty years in the cultivation and study of plants and seeds, in all their various branches, he hopes to give general satisfaction.

* A few bushels of seeds, oats, and a few pounds Wethersfield Onion still on hand.

☞ A liberal discount allowed to those who purchase to sell again.

Baltimore, April 20, 1821.

PRICES CURRENT.

Flour, from the wagons, 3 75 to \$3 87½—Wheat, from do 22 cts per gallon—Hay, per ton \$17—Straw, 7 to 10—Wheat, red 70 to 73—White do 75 to 78 cts—Barley, 45 to 50—Oats, 23 to 25 cts—Potato do, for seed, 45 cts—Corn, 30 to 31—yellow, 26—do for feed, per quintal, wholesale \$3, retail do, \$4—N. Eng. Beans per bushel, \$1 12½—ditto Peas, 75 cts—Plaster in stone \$6 per ton—ditto ground \$3 per do—do in bbls \$3 37½—do. do. bushel 33 cts—N. O. Sugar, 75 to 10—Muscovado, do. \$7 50 to 9 25—American White Lead, \$12 50—Ground, do. \$13 a 14—Lard, seed Oil, 75 cts—Peathers, 40 to 45 cts—N. E. Potatoes, retail 63 cts per bushel—Live Cattle, \$3 to \$5 50—Beef, prime pieces, 8 to 10 cts—corn Beef, 7 cts—Hutton, 8 to 10 cts—Hams, 10 to 12 cts—Middlings, 8 to 10 cts—Butter, 20 to 25 cts—Eggs, 12 cts—Cheese, 8 to 10 cts, per lb.—Tar, \$1 62½—Soft Turpentine, \$2—Pitch, \$2—Ruin, common 14½—bright do, \$3 per barrel—Turkish, 25 cts—Spirits turpentine, 33 cts, per gal.—Cotton, good Upland, 13 to 15 cts, per lb.—Rice, 3 a 31 cts—ship and flooring Plank, \$25 to 27—Shingles, best 6½ a 87—com, \$3 a 43 p. M—Oak, wood, \$5 50— Hickorys, \$5 per cord—Clover, seed \$6—Am. Orchard, Apples, do. \$3—Eng. do. do. or Cuckey's, do. \$8—Herd's, do \$3—Sunfin, per bushel \$8—Millet, do \$2—Lucern, 62 cents per lb—Sweet Scented Vernal Grass, 150 cents—Trefail, 50 cents per pound—Ruta Baga, 50 cents—Mangle Wurzel, 175 cents—Cabbage seed, 2 to \$6 per pound—Cauliflower, 75 to 100 cts, per oz.—Spring Turneps, \$8 per bushel—Peas, 25 to 37½ cts per quart—short orange Carrot, 12½ cts.—Paraph, 124 cts—Lettuce, 25 cents—Raddish, 12½ to 20 cts—Beet 20 cents—Broccoli, 31 to 100 cts—Cucumber, 37 to 50 cts per oz.—Turnip seed, 50 to 125 cts per lb.—Chicory, 75 cents per pound—Rape, 124 cents do—large Amsterdam Cabbage for cattle, 25 cents per oz.—Irish Furg or Wine, \$2 per pound—Bush and Fall Beans, 6½ to 25 cents per quart—New York premium Ploughs of sizes from 7 to \$16—Box Churns, 8 to \$9—Drill Machines, 10 to \$11—Bennet's broad cast Machine for sowing Clover, Turnip, and Grass Seeds, \$18—Expanding Cultivators, \$15—Post Augurs, 5 to \$9—Flexible Tubes, to relieve cattle when hozen or choked, with gags, the pair \$3—Corn Shellers, 20 to \$25—Turnip Scoops, 50 cents each—large 2 horse Connecticut Ploughs, iron mould boards, \$11—do do. wood, 10½—small Ploughs, do \$7 50.

Maryland Tobacco—Eastern Shore crop Tobacco, 4 to \$3½—Potomac, 4 to \$3 50—Patuxent, 5 to \$7—Waggon, old ground, fired 8 to \$10—New, do. 10 to \$13—Yellow, none.

Kentucky Tobacco—10 hlds. were sold the last week for \$5.

Virginia Tobacco—no sales.

Extract of a letter from Columbus, Ohio, to the Editor of the Albany Plough Boy, dated 21st March, 1821.

"Our present cash prices of produce are: Corn, 26 cents per bushel—Wheat, 25—Oats, 12½—Rye, common kind, 18—Pork, \$1 50 per cwt—Beef, \$3—Cheese, 8 cents per lb—Butter, 8 cents."

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatus nimium sua ai bona noruit
Agricolae." . . . VINO.

VOL. III.

BALTIMORE, FRIDAY, APRIL 27, 1821.

NUM. 5.

AGRICULTURE.

PISÉ,

Or the Art of Building strong and durable Walls, to the Height of several Stories, with nothing but Earth, or the most common Materials. Drawn up and presented to the Board of Agriculture, by Henry Holland, Esq.

[Concluded from No. 4, page 29, volume IV.]

Of Pisé and its Origin.

CHAPTER X.

Experiments to ascertain the qualities of any earth.

First experiment.—Take a small wooden tub or pail without a bottom, dig a hole in the ground of a court or garden, and at the bottom of that hole fix a piece of stone, flat and level; place your tub upon the stone, fill around it the earth that has been dug out to make the hole, and ram it well, that the tub may be inclosed, to prevent its bursting. Then ram into the tub the earth you mean to try; putting in at each time, about the thickness of three or four finger's breadths; when this is well rammed, add as much more, and ram it in the same manner, and so the third and fourth, &c. till the earth is raised above the brim. This superfluous earth must be scraped off extremely smooth, and rendered as even as the under part will be which lies on the stone.

Loosen with a spade the earth around the tub, and you will then be able to take it out, and with it the compressed earth that it contains; then turn the tub upside down, and if it is wider at the top than at the bottom, as such vessels usually are, the pisé will easily come out, but if it should happen to stick, let it dry in the air about twenty four hours, and you will then find that the earth is loose enough to fall out of itself. You must be careful to cover this lump of pisé with a little board; for though a shower of rain, falling in an oblique direction, will not injure it, yet it may be a little damaged, if the rain falls perpendicular, and especially if it remains upon it. Leave the lump exposed to the air, only covered with a board or flat stone, and if it continues without cracking or crumbling, and increases daily in density and compactness as its natural moisture decreases, you may be sure that the earth is fit for building.—But you must remember, that it is necessary that the earth employed should be taken from a little below the surface of the ground, in order that it may neither be too dry nor too wet; it must be observed also, that if the earth is not well pressed around the outside of the tub before it is filled, though the hoops were of iron, they would burst, so great is the pressure of the beaten earth against the mould, of whatever size it may be.

Second experiment.—This trial may be made in the house. Having brought from a field the earth you want to try, press it in a stone mortar, with a pestle of wood, brass, or iron, (the latter is best,) or with a hammer, fill the mortar above the edge, and then with a large knife, or some other instrument, take away the superabundance of earth even with the brim. If you then find that the earth will not quit the mortar, you must expose it to the sun, or near a fire; and when it is sufficiently dry, it may be taken out without difficulty, by turning the mortar upside down on a flat stone, or on the floor. It will have the shape of the mortar, and if exposed as above directed, will shew the quality of the earth.

Third experiment.—Press with the end of a stick or cane, your earth in a little box, round which you had better first tie a piece of packthread, lest it should burst in the operation; when you have filled it above its brim, cut off the overplus with a knife; you will undoubtedly be obliged to break the box to get it out, unless you had rather wait, and let it dry in the air, in the sun, or before a fire. It will take the exact form of a box, be it either round, square, or oval; if your earth be red, or any other colour, that which is inclosed in the box will still remain the same.

It is not improper to remark, that the colour of the earth neither adds to, nor diminishes, the goodness of the pisé, therefore every proprietor may be at ease on that head.

An experiment which may be made at any time.—Every person in walking on this ground may make little balls of earth, and press them as tight as he can between his hands. If he brings them home and puts marks on them, he will by that means know the quality of every piece of land, and also be a judge of the mixture it will be necessary to make.

CHAPTER XI.

On the preparation of the earth for building.

All the operations of this art are very simple and easy; there is nothing to be done but to dig up the earth with a pick-axe, break the clods with a shovel, so as to divide it well, and then lay it in a heap; which is very necessary, because as the labourers throw it on that heap, the lumps of earth and large stones roll to the bottom, where another man may break them or draw them away with a rake. I must observe, that there should be an interval of about an inch and a quarter between the teeth of the rake, that the stones and pebbles of the size of a walnut, or something more, may escape, and that it may draw off only the largest. If the earth that has been dug has not the proper quality, which is seldom the case, and that it is necessary to fetch some better from a distance, then the mixture must be made in this manner: one man must throw one shovel full of the best sort, while the others throw five or six of the inferior sort on the heap, and so more or less according to the proportion which has been previously ascertained. No more earth should be prepared than the men can work in one day, or a little more, that they may not be in want; but if rain is expected, you must have at hand, either planks, mats, or old clothes to lay over the heap of earth, so that the rain may not wet it; and then as soon as the rain is over, the men may resume their work, which, without this precaution, must be delayed; for it must be remembered, that the earth cannot be used when it is either too dry or too wet; and therefore if the rain should wet it after it has been prepared, the men will be obliged to wait till it has recovered its proper consistency; a delay which would be equally disadvantageous to them and their employer. When the earth has been soaked with rain, instead of suffering compression, it becomes mud in the mould; even though it be but a little too moist, it cannot be worked; it swells under the blows of the rammer, and a stroke in one place makes it rise in another. When this is the case, it is better to stop the work, for the men find so much difficulty that it is not worth while to proceed. But there is not the same necessity of discontinuing the work when the earth is too dry, for it is easy to give it the necessary degree of moisture; in such a case it should be sprinkled with a watering pail, and afterwards well mixed up together; it will then be fit for use.

It has already been observed, that no vegetable substances should be left in the earth; therefore in digging, as well as in laying the earth in a heap, great care must be taken to pick out every bit of root, great

and small, all sprigs and herbs, all bits of hay and straw, chips or shavings of wood, and in general every thing that can rot, or suffer a change in the earth.

CHAPTER XII.

On the bond timber to be used in the buildings of pisé.

To make good walls, it is not sufficient that the earth be well beaten, we must also learn to unite them well together. In houses of brick or stone, to consolidate their parts, they make use of angles and binders of free stone, and of iron braces, and cramp irons, which are very expensive; but here the binders cost very little; they consist only of thin pieces of wood, a few cramps and nails, and these are sufficient to give the greatest stability to buildings of pisé.

The first course A, see plate IV figure 15, being laid on the front and inner walls of a house, we begin the second; and if for the inferior course the mould has been directed from A to E, it must, for this second, be directed from A to F, as has been explained, see Plate VI. figure 13. But before this second course is begun, lay at the bottom of the mould a board about five or six feet long, resting on the angle A, and extending lengthwise towards B. This board must be rough, as the sawyers have left it, something less than an inch thick, and in breadth about eight, nine, or ten inches, so that there may remain on each side four or five inches of earth, if the wall is eighteen thick; by this means the board will be entirely concealed in the body of the wall. When thus placed neither the air, nor damp can reach it, and of course there is no danger of its rotting. This has been often proved by experience, as in taking down old houses of pisé such boards have always been found perfectly sound, and many that had not even lost the colour of new wood. It is easy to conceive how much this board, from the pressure of the work raised above it, will contribute to bind together the two lengths A and B, and to strengthen the angle A r; but this is not all, it is useful (particularly when the earth is not of a very good quality) to put ends of planks into the pisé after it has been rammed about half the height of the mould. These ends of planks should be only ten or eleven inches long, to leave as before a few inches of earth on each side of the wall, if it is eighteen inches thick; they should be laid crosswise (as the plank before mentioned is laid lengthwise) over the whole course, at the distance of about two feet from one another, and will serve to equalize the pressure of the upper parts of the works on the lower course of the pisé.

The boards above-mentioned need only be placed at the angles of the exterior wall; and in those places where the courses of the partition walls join to those of the exterior wall; the same directions that have been given for the second course, must be observed at each succeeding course, up to the roof. By these means the reader will perceive that an innumerable quantity of holders or bindings will be formed, which sometimes draw to the right, sometimes to the left of the angles, and which powerfully unite the front walls with those of the partitions; the several parts deriving mutual support from one another, and the whole being rendered compact and solid.

Hence these houses made of earth alone, are able to resist the violence of the highest winds, storms and tempests. The height that is intended to be given to each story being known, boards of three or four feet in length should be placed before hand in the pisé, in those places where the beams are to be fixed, and as soon as the mould no longer occupies that place, the beams may be laid on, though the pisé be fresh made; little slips of wood, or boards, may be introduced under them, in order to fix them level.—The beams thus fixed for each story, the pisé may be continued as high as the place, on which you intend

continued as high as the place on which you intended to erect the roof.

CHAPTER XIII.

On building walls for enclosures.

With respect to walls for enclosures of parks, gardens, yards, &c. the mould must be fixed in an angle, or against a building, if the wall is to reach so far, and the workmen must proceed from thence to the other extremity of the wall—and when they have finished the first course, they must raise the mould to make the second, returning to the same place where they began the first.

But when a very great inclosure is to be made, as for instance a park wall, then, for the sake of speed, it is necessary to set several moulds and men to work. In such a case, a mould should be placed at each end, & the number of men be doubled; they will work at the same time, and meet in the middle of the wall, where they will close the first course; after which, each set of men raise their mould to make the second, and both setting out from the middle continue working, in opposite directions, towards the ends where they first began.

CHAPTER XIV.

On the time and labour necessary in building a certain quantity of pise.

Besides the advantages of strength and cheapness, this method of building possesses that of speed in the execution. That the reader may know the time that is required for building a house, or an enclosure, he need only be told, that a mason used to the work, can, with the help of his labourer, when the earth lies near, build in one day, six feet square of the pise. If two men can build in one day six feet square, it is evident that six men, which is the necessary number to work the mould (viz. three in the mould, and three to dig and prepare the earth,) will build in the course of sixteen days, or three weeks at most, such a house as is delineated in Plate V. figure 16 and 17, containing 288 square feet of wall: a very short time therefore is sufficient for man to build himself a solid and lasting habitation. These facts which have been proved by numberless instances, afford a proportion by which every one may determine the time that his house or wall will take in building, having first ascertained the number of feet it will contain. Thus, if he wishes to have a wall 540 feet long, and six feet high, it will be finished in one month with one single mould, and six men—but if he doubles both moulds and men, it will be done in fifteen days. These are simple but necessary instructions, for they will prevent the inconvenience to which masons are exposed, from having the completion of their building protracted beyond the time that they originally expected. All persons who wish to build, may now contract with the builder that the work shall be finished on such a day; or that he shall indemnify them for all the losses which they may incur from his failure to make good his engagement.

CHAPTER XV.

On the outside covering.

The outside covering of plaster, which is proper for pise walls, is quite different from that which is made use of on any other walls; it is necessary too, to take a proper time for laying it on.

If a house of pise has been begun in February, and completed in April, the covering may be laid on in the autumn, that is to say, five or six months after it is finished; or if it is finished in the beginning of November (at which time the masons generally give over working) it may be laid on in the spring. In this interval the walls will be sufficiently dried; but it must not be imagined that it is the drought or cold that extracts the moisture from an earthen wall: it is only the air, and particularly the north air, which is of itself sufficient, either in summer or winter, to dry a pise wall thoroughly. If you happen to lay the plaster over them before the dampness is entirely gone, you must expect that the sweat of the walls will cast off the plaster.

To prepare the walls for plastering, indent them with the point of a hammer, or hatchet, without being afraid of spoiling the surface left by the mould: all these little dents must be made as close as possi-

ble to each other, and cut in, from top to bottom, so that every hole may have a little rest in the inferior part, which will serve to retain and support the plaster.

To do this, the masons must make a small scaffold in the holes which the joists of the mould have left (see those holes in Plate VI and VII. figure eighteen and nineteen.) This scaffold may be made in a few minutes; and when, with the assistance of it, they have indented the upper parts of the house, they must run a stiff brush over the indented surface to remove all dust or loose earth. The walls thus prepared, they may lay on the plastering; but before the manner of doing this is described, it should be observed, that there are two kinds of plaster that may be used in the pise: rough cast, and stucco. Rough cast consists of a small quantity of mortar, diluted with water in a tub, to which a trowel of pure lime is added, so as to make it about the thickness of cream. Stucco is nothing more than poor mortar, which the labourers make up in a clean place near the lime pit, and carry it to the masons on the scaffold.

Such is the manner of preparing the coverings; let us now see the manner of employing them.

For rough casting, one workman and his labourer are sufficient; the workmen on the scaffold sprinkles with a brush the wall he has indented, swept, and prepared; after that he dips another brush, made of bits of reed, box, &c. into the tub which contains the rough cast, and throws with this brush the rough cast against the wall; when he has covered, with as much equality as possible, so much of the wall as is within his reach, he lowers his scaffold, and stops up the holes of the joists with stones, or old plaster, &c. does as before, and continues lowering his scaffold in the same manner till he comes to the bottom of the house.

This rough cast, which is attended with so little trouble and expence, is notwithstanding the best cover that can be made for pise walls, and for all other constructions: it contributes to preserve the buildings, and though not beautiful, has the recommendation of being attainable by people in moderate circumstances. It is the peculiar advantage of these buildings, that all the materials they require are cheap, and all the workmanship simple and easy.

The process of stuccoing is very different; two workmen and two labourers are requisite, the two workmen being on the scaffold, and one of the labourers making up the mortar, while the other carries it with water, and serves the workmen. One of the workmen holds in his right hand a trowel, and in the other a brush, with which he sprinkles the wall, having before hand indented and swept it; after that, he lays on a few trowels full of stucco, which he spreads as much as possible with the same trowel, and then he lays on more, and thus continues his work. The second workman has also in his left hand a brush, and in his right a small wood float; he sprinkles water over the mortar that his partner has spread, and rubs over that part he has wetted with his wood float.

The reader easily perceives the progress of this work; the first workman lays on the plaster, and advances gradually, the second follows and polishes; one labourer makes up the stucco, the other carries it and serves the workmen. By this progress the smoothest, finest, and cheapest plastering is made.

At the same time that the plaster is laid on, it may also be whitened by the use of lime alone, which is also an object of economy, since it saves white lead. For this purpose dilute lime in a tub of very clear water, and let a labourer take some of it in a pail, and carry it to the workmen, who must lay it on with a brush;—this, as well as all other colours, adheres to the plaster, and never falls, although it is used with water only, without size or oil. This is to be attributed to the precaution of laying on the colour whilst the plaster is still wet; as it grows dry, it incorporates mineral colours with its own substance, and makes them last as long as itself. This is on the principles of fresco colouring or painting.

Lime is a very general utility; it is used in building, in plastering, and in white washing—and it will appear from the chapter on painting, that for that purpose also, it may be employed with advantages.—Those who intend to build, therefore, ought always to have a store of it by them, and it should be slacked a long time before it is used, to prevent crevices and blisters, which, without this precaution, will arise in the plaster, and give it so disagreeable an appearance, that it will be necessary to do the work over again. The reason of it is this, there will always remain in the lime some particles that have not been slacked in the pit; all the stones are not entirely reduced to lime in the kiln, and those stones will resist the action of the water for a time, and will burst from the plaster after it has been laid, leaving the crevices above-mentioned. This inconvenience will not happen if the lime, after being slacked, is left to stand some time before it is used. Indeed it will not be amiss to let it lie by a whole year.

CHAPTER XVI.

On painting in Fresco on the outside covering.

That kind of painting which is known by the name of *Fresco*, is the most beautiful and cheapest of any, and it is that which the French author recommends for the decoration of pise buildings. The most celebrated painters were very partial to it, and Rome furnishes many excellent models, which should engage us to restore it from that neglect and disuse into which it has, without reason been suffered to fall.

Whoever wishes to have his house painted in *Fresco*, must have a painter ready, and place him on the scaffold with the workmen. The latter lay on the mortar, as before directed, and are attentive to spread it very even, so receive the paint. When they have finished one part, they suspend their work, to give the painter time to do his; for if they continued working on, the painter, who cannot go on as fast as they, would find the mortar too dry, and the colours would not incorporate with it. It is absolutely necessary, that the plasterer's work should be subordinate to that of the painter—it is sometimes so arranged that the latter works, while the former are gone to their meals—and when in his turn he retires from work, he traces out the part that the plasterers are to cover during his absence, foreseeing how much he shall be able to paint in the course of the day. All these precautions are taken, to prevent the too speedy drying of the mortar, and to seize the proper time to lay on the colours while it is fresh. Although this work does not profess to teach the art of painting in *Fresco*, it may perhaps be found to contain directions sufficient for the execution of it in an ordinary manner.

To make the colour, you mean to give to a country house, dilute in a large tub, a sufficient quantity of lime which has been slacked a long time—you must also dilute in another tub or pot, some ochre, either yellow, red, or any other mineral colour you please, but always in very clear water; after which pour a little of the colour into the large tub, and stir it about with a stick, so as to mix it well with the lime—take some of the colour on a brush, and try it on a board or wall—it is too deep or too light, add fresh lime or colour from the tub, and by repeated trials you will bring it to the tint you wish to give the house. The colour being made for the body of the house, the frames of the doors and windows are next to be considered, and a new colour chosen, to distinguish them from the rest of the front. If the body of the house is painted yellow, or of a pale red, the angles and frames may be white or blue—if it is grey, they may be yellow or deep red, and in all cases it will be a very easy matter to find the most suitable colours.

The plasterers are equal to painting the fronts of houses in a common way—but when builders or proprietors wish to have them decorated in a superior manner, they must call in a painter, whose business it is to do it.

These paintings in *Fresco* are more lively and brilliant than any other, because the colours are not deadened by size and oil, which do not enter into their composition—their effect is surprising, and that pleasure may be had at a little expence.

NOTE.—The plaster proper to serve as a ground

for Fresco painting or colouring, is made of one part lime, and three parts clean, sharp, washed sand; this sort of painting has lately been executed with great success at Woburn Abbey, and some other places.—It is not very usual to slack the lime in England so long before it is wanted, but it is an excellent practice, especially if it be wood burnt.

On the mode of building in France, termed Pisé; being the substance of a letter from the Rev. Mr. Jacour, an emigrant clergyman now in London, to the under secretary of the Board of Agriculture; dated London, 14th June, 1797.

Sir,

My having been an inhabitant for some time of the town of Montheron, capital of the Forêts, enables me to give you some information concerning the mode of building houses with earth, &c.

The church was the most remarkable in this style of building; it is about eighty feet long, forty feet broad, and fifty feet high; the walls built in *pisé*, eighteen inches thick, and *crepe*, or rough cast on the outside with lime and sand. Soon after my arrival, the church, by some accident was destroyed by fire, and remained unroofed for about a twelve month, exposed to rains and frost. As it was suspected that the walls had sustained much damage, either by fire or the inclemency of the season, and might fall down, it was determined to throw them down partially, and leave only the lower parts standing; but even this was not done without much difficulty, such was the firmness and hardness these walls had acquired, the church having stood above eighty years; and all the repairs required, were only to give it on the outside every twelve or fifteen years, a new coating of rough cast.

A house for a single family is generally finished in about a fortnight. The following is the method I have seen in practice.

The earth is pounded as much as possible, in order to crumble any stones therein; clay is added thereto in a small quantity, about one-eighth part. It is all beaten and mixed up together by repeated blows with a mallet about ten inches broad, and ten or fifteen inches long, and two inches thick. The earth being thus prepared, and slightly wetted, the foundation of the house is dug for—this is laid with stone, and when it is about one foot high above the surface of the ground, planks are arranged on each side, which are filled with earth intended for the wall—this is called *pisé* in the dialect of that country. It is strongly beaten and this method is continued successively all round the building. The walls have more or less thickness, according to the fancy of the owner—I have seen them of six and of eighteen inches thick. Some builders intersperse from space to space, a thin layer of lime. If several stories are intended in such erections they do not fail to place beams to support the floors before they build higher—the windows and doors are attended to in the same manner. Of such buildings I never saw any consisting of more than two stories at most—generally they have but one, besides the ground floor. When the building is thus finished, it is left for some time to dry—then such as wish to make the building more solid and durable, give it a rough cast coating on the outside with lime and sand. This is what I have observed during a residence of three years in the town of Montheron. I should be happy if this detail should afford the slightest information to the generous nation which has received us with so much goodness.

I am, &c.

JAUCOUR,

Rector of St. John's, La Rochelle.

The Island of Madeira, ITS WINE'S VINES, GEOLOGICAL PHENOMENA, &c. &c. &c.

Communicated by the American Farmer.

The island of Madeira was not known to the ancients, and some accounts attribute its disco-

very to the accident of two lovers flying from persecution, having been stranded on its coast. The Lady died a short time after the shipwreck, and the faithful swain inconsolable for her loss, survived her only a few days. The companions of their misfortune left the island in a boat constructed from the wreck; but were captured on the Coast of Africa by a Salee rover. In Africa among their fellow sufferers, their shipwreck, the melancholy fate of the lovers, and the extreme fertility and beauty of the Island, were the constant theme of their conversation. On the release of one of them, who was a Portuguese, the story was told to Prince Henry of Portugal and an expedition was fitted out in Lisbon, which took possession first of Port Santo, and afterwards of Madeira in 1419.

The Island of Madeira is 120 miles in circumference, 45 miles long, and its extreme breadth 15 miles, and least 8½. The Pico de Ruivo, the highest point of the island, is elevated 8953 feet above the level of the sea. On approaching the Island from the sea it presents a variegated and beautiful appearance.—The sides of the hills are clothed with vines, and flowering shrubs, and the Ravines, and mountains covered with forest trees; streams of water are seen bursting from between the rocks, and falling into the ocean, and the prospect is terminated by a mass of mountains, and by the lofty summit of the Ruivo rising from the clouds, which hover round its base.

Funchal is situated in a bay at the foot of an amphitheatre of hills, which rise abruptly from the sea. The town is neatly built, and contains twenty thousand inhabitants.

The Bay of Funchal is a very wild and insecure roadstead, being protected only from the North and North East winds. In the winter, the South and South West winds blow with great violence, a heavy swell rolls in, and ships are frequently obliged to slip their cables and put to sea. During the North East winds, which are most prevalent in summer, there is invariably what the inhabitants call an *invat*, that is, a counter current of wind blowing fresh from the West. The landing is a steep beach and the boats used to unload the ships are drawn up high and dry by means of a windlass, worked by oxen. The wine is carried off in lighters, and men are constantly employed swimming and floating the pipes through the surf, which at times runs very high. Funchal is situated in about the same latitude as Charleston, in South Carolina, but enjoys a much milder climate. In summer the thermometer fluctuates between 70° and 80° of Fahrenheit, and in winter between 65° and 57°. The East wind which blows from the coast of Africa, sometimes raises the mercury to 90° and even to 100°. It is the Sirocco, and the parching feverish effect of this wind is well known. It visits the Island but rarely, and seldom lasts longer than forty-eight hours. In all mountainous countries the height above the level of the sea, determines the temperature, and on ascending the hills, two miles from Funchal, I have remarked a difference of 10 degrees of Fahrenheit; but during the prevalence of the East wind the heat is most intense upon the mountains. The heights above the town are ornamented with beautiful country seats, to

which the inhabitants retire during the summer months. Snow falls on the mountains in the months of January, February, and March, and the rains during those months are frequent and heavy.

In 1803 some reservoirs on the mountains burst, or as the people of the island say, a water spout, the torrents swelled, and overwhelmed every thing in their course. The river of Santa Luzia, which flows through the town in a deep ravine, overflowed, destroyed the bridges, and swept away all the buildings on its banks. 300 persons perished on this occasion.

The whole Island appears to have been of Volcanic origin. The rocks which form the base, are all of compact Lava, and a projecting rock which forms the W. point of the bay, is a mass of Lava, and resembles the natural mole produced at Catania by a late eruption of Ætna. Basaltes of Piedra viva are seen on the East of the island, and some limestone is found in the interior. The houses are for the most part built of Lava, and the enclosures near the coast are of Lava and Scories. The soil on the South of the island is of decomposed Scories, and Volcanic sand, impregnated with Sal-ammoniac, which gives the hills a reddish tint, and is one cause of the excellence of the wines, as appears from those produced at the foot of Vesuvius, called Lacrymæ Christi, and the rich wines of Catania, made from the Vineyards on the sands of Mount Ætna. Every stone that I saw bore evident marks of fusion, and the mountains wherever they have been cut through to make roads, appear in horizontal strata of Lava—and Scories, denoting the formation of the Island by successive eruptions.

The Sugar Cane was formerly much cultivated, and the Sugar of Madeira was highly esteemed—the cultivation of the vine has now the preference, and the Sugar plantations on the South of the island are not very extensive.

The Vine was originally brought from Cyprus—it is planted from cuttings in straight rows; a southern aspect is sought for, and is necessary to making the best wine. The labourer standing with his back to the South, opens a trench about four feet deep, and with his hoe draws the earth up in ridges; the cuttings are then planted in this inclined plane at from 6 to 12 inches apart, according to the number of plants; if when they have taken they are found to be too close, they are afterwards thinned.—After they begin to sprout, the earth from the second ridge is thrown into the first trench, and so on successively, leaving the vine inclining to the S and buried nearly 6 feet. I have likewise seen cuttings planted by burying the centre, and leaving both extremities out of the earth; where the land is dry stones are thrown into the trench. Great care is taken to prune off the unhealthy sprouts. When the plant is sufficiently grown to require support, a cane lattice work is erected on posts, higher on the N. side, and inclining gradually to the S. which gives an equal exposure to the sun, and throws off the rain.—The lattice work, which is made of our swamp cane, is raised three or four feet from the ground, and the vine is drawn through and laid upon it. This method I have never seen practised elsewhere.

In Italy and in the South of France the vines

are festooned on poles, or trained from tree to tree, and in the North they cling to poles stuck perpendicularly in the earth; in Madeira they are exposed on a flat extensive surface and must ripen more equally. The planting takes place immediately after the vines are pruned in January or February, and the longest cuttings are chosen for that purpose. It is generally three years before any benefit is received from a new Vineyard, and six before it comes to perfection.

Bad vintages are occasioned either by a long continuance of foggy weather in April, May, and June; E. or Sirocco winds in July and August, or untimely and heavy rains in August and September.

The lands are in possession of Morgados or large land holders, and are generally entailed. The farmer holds his tenure on condition of paying half the produce, which added to the exaction of tithes, the presents to the curates, and high price of provisions, has diminished the cultivation of the Vine, and raises South wine when first brought to the merchant at Funchal to \$120 the pipe.

The vintage commences on the south of the island early in September, and lasts to the middle of October. Great care should be taken to pick the grapes clean, by cutting off the unripe, or rotten fruit. The grapes are gathered when full ripe, and after some few have become raisins. They are put into a square vat pierced with holes not large enough to let the skin of the Grape fall through; they are then stamped by men, and drained into a receiver, the refuse is afterwards pressed. After a slight fermentation the wine is drawn off into casks, or sent to town in goat skins, on men's shoulders, or in barrels on Asses and Mules. There is a great variety of Grapes, and they are all mixed to make the common wines. The Tinta, a very high flavoured red wine, is made from the Negronole and Verdella, the Sercial from a grape brought originally from the banks of the Rhine; and the Malmsay from the Malvasia Grapes, which are kept on the vine until two thirds of them become raisins, it is generally sweetened with sugar. The Buas is the best Grape, and the wine made exclusively from the grape is of the highest flavour.

When the Wine dealer receives the Wine if it be in must, or perfectly new, it is put into casks and worked for several days, with a sort of paddle introduced at the bung hole. It is then left to settle, and when the fermentation has ceased, and the new wine become clear, it is drawn off into casks, containing from 4 to 800 gallons, and from five to ten gallons of Brandy added to 120 of Wine. Only the best French brandy is used, and as it costs in Madeira more than wine, it is used as sparingly as possible.

The wine is then left to ripen, each quality separate. When drawn off into pipes to be shipped, they are mixed according to the judgment of the wine taster, whose skill consists in having observed what wines mix best. It is then fined with isinglass; an ounce is put into a cask of 110 gallons, and the wine agitated with a paddle, and being left to settle, in a few days it becomes perfectly clear. In order to prepare the pipes, they are kept for some months filled with water—they are afterwards washed with

boiling water, and rinsed with brandy: a large lighted match of sulphur is then put into the bung hole, and when the pipe is full of smoke, the bung is closed tight until the cask is wanted. The latter part of this process is repeated every time the cask is emptied.

The wines from the North of the Island, and such as are not of the first quality are kept for some months in Estufas, or hot houses to mellow them. They change the temperature by moving them to different floors. The heat of the Estufa is from 90° to 100° of Fahrenheit. The produce of the Island seldom exceeds 30,000 pipes—about 15,000 are annually exported, the remainder being consumed in the Island, where it constitutes the common drink of the inhabitants.

The population of Madeira is about 85,000 souls, and although during the late war, they cultivated more wheat, yams, and potatoes than usual, still the produce does not exceed three months supply in the year; the rest is drawn from the United States. The greatest anxiety was expressed for the renewal of our commerce. Fleets appeared from the East, and no interest or curiosity was excited or expressed, whilst a speck on the western horizon was viewed with impatient expectation, and the heights were covered with people eager to distinguish the American colours. [Written immediately after the peace was concluded at Ghent.]

The roads near the town are well paved, and stone bridges are thrown over the water courses. The country is so broken that it presents a constant succession of steep hills, and deep ravines, and the views are diversified and beautiful. The houses of the peasantry are generally cut from the sides of the hills, the back and side being formed from the hill, and the front only built of stone, they are thatched and small. The wild rose, the honeysuckle, the geranium and myrtle, are seen growing with luxuriance in the hedges, the venatica, (figum klodium) an evergreen of very dark foliage, is very abundant, and grows to a great size in the ravines, and on the sides of the hills the chestnut trees rival those of Sicily. One of these trees measured 40 feet in circumference, not far from Funchal.

I visited the falls of Santa Luzia, a cascade which falls from a height of nearly 800 feet, and which terminates a series of romantic views along the banks of the river. The Coral, and the Jardin, are both within four hours ride of the town. The former is a deep Glen inclosed on every side, and being viewed from a great height presents a prospect of gloomy grandeur. The latter is a fertile and highly picturesque valley.

The finest view to which the attention of a stranger is directed, is that of the Portello, it opens abruptly from an immense height, and commands an extensive prospect of the sea, terminated by the Island of Porto Santo, and immediately beneath lie the port and town of Cruz, the town of Fayal, with a number of farm houses and plantations. On my road to the Portello, I overtook several peasants going to San Antonio da Serra, and on enquiring found, that the Patron Saint of that place was to be removed to another Church, to propitiate him by a solemn procession, in hopes to obtain rain;

on my observing that we might then expect rain immediately, no Senor, replied my informer, but the day after tomorrow certainly, for our prayers last three days. And if it did not rain the Saint lost no credit, they would attribute the failure to their own want of merit, and increase their offerings and prayers. I stopped at San Antonio da Serra to see the procession, and to examine an extinguished Grator.

The little Saint, a Doll about two feet long, dressed very fine, was carried by a fat Priest, under a Canopy supported by Friars, who chaunted as they went, preceded by more than a thousand peasants, bearing green boughs, and followed by as many women dressed in all their finery; this motly group winding round the hills afforded a gay and pleasing sight. There are several Saints of great fame on the Island. The most celebrated for her miracles, is our Lady of the Mount. Her Church is situated immediately over the town of Funchal, from whence the view extends over the town and bay, and over all the southern part of the Island. On my return from visiting her shrine, I met a procession of sailors, toiling up hill, and sweating under the load of a large fore top-sail, which had been offered to our Lady, during the perils of a heavy gale. This is a very common practice of the Portuguese Mariners. The sail is valued and its ransom paid in money.

From want of attention, Leprosy is very common, and as they allow the Lepers to itinerary, it spreads daily.

There is but little game on the island. Partridges, Quails, and Woodcocks are sometimes found, Pigeons are more common. There is a great variety of singing birds, particularly a dark coloured Canary, and the Tinto Negro, a small bird with a very melodious note.

Fish is abundant and good, the red Mullet is highly esteemed, and is of a very fine flavour. The Epicures of Madeira call it the sea woodcock. There, as in all the Portuguese dominions, the fishermen pay to the Crown a tithe of the fish brought to market.

The Pine Apple, Bananna, and Guava are abundant, and all the fruits of Europe come to great perfection on this Island.

From the "Philadelphia Gazette"—and corrected by W. White.

GREAT CATTLE SHOW,

AND

GRAND PROCESSION OF THE VICTUALLERS OF PHILADELPHIA.

It was originally the intention of Mr. Wm. White, and the Victuallers who assisted him in this splendid Show, and enterprising undertaking on the 15th of March last, to have laid before the public a detailed account of all the paraphernalia of the procession; but circumstances have intervened, and so much time has elapsed, as to render it merely necessary to state, for the purpose of information to the country, and to the world, the actual weight of this extraordinary STOCK OF CATTLE.

The following are of the Gough breed,* sixteen in number, fed by Louis Clapier, Esq. at

* This breed come from England; the particular name unknown. The cattle came from Kentucky—they were, 3, 4, and 5 years old—one was 7 years.

his farm, Highlands of Germantown, the weight of which was as follows:—

1320	1360
1388	1440
1436	1428
1280	1428
1548	1384
1248	1284
1250	1332
1448	1288

Average wt. 1347 lbs.

The following mostly selected from common drove cattle—also fed by Lewis Clapier, Esq. and laid in from 750 to 800 cwt. and fattened in 14 months, and were remarkable for their proportion and beauty of figure.

1184	1129
1108	1156
1100	1192
1128	1112

Average—1151 lbs.

The following, fed by George Sheaff, Esq. Highlands of Montgomery, weighed as follows:

1215	1150
1129	1227

Averaging 1180 lbs.

Fed by Mr. Wm. White, Penn Township:

1073	1132
1118	1111

Averaging 1113 lbs.

Fed by Major Pissant, of New-Jersey:

1550

A Calf do. 552, very extraordinary for size and beauty.

A Steer, fed by Philip Lowry, Penn Township, not quite 7 years old, weight 1977 lbs.

Fed by Peter Wager, Esq. of Montgomery Square:

1076	1172
1088	1160

Average 1124 lbs.

Fed by Henry Boraß, Penn Township:

942	1102
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Average 1022 lbs.

Fed by Samuel Painter, Delaware county:

1224	1138
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Average 1181 lbs.

Amount of fat and suet of the above Cattle, 15,221 lbs. averaging 362 lbs. and a fraction over of 2½ lbs.

Weight of Hides 5234

Calf skin 50

The tripe of the 42 head 1260

One sheep fed by William Bradley, Moyamensing, lbs. 166 } ¾ blood

Rough tallow 29 } Bakewell.

Eight sheep fed by Aaron Clements, (small breed) Philadelphia county—three years old:

950½

Average 119½

24 lbs. each.

Rough tallow averaged 24 lbs. each.
Ten sheep fed by Samuel West, Delaware county—only two years old: 909½—new Leicester or Bakewell breed.

Average 90 7/8

Rough tallow 18 lbs.

7 Kids fed by Wm. White, dressed lbs. 284

lamb fashion, 36

Rough Tallow, 160

2 Fawns, 316

5 Cub Bears, 516

RECAPITULATION.

Aggregate weight of the above, viz:

Of Beef,	55,024
Fat and Suet,	15,221
Hides,	5234
Calf Skin,	50
Tripe,	1260
Sheep,	2832
Rough Tallow,	596
Kids,	284
Rough Tallow,	36
2 Fawns,	160
5 Cub Bears,	516
Fat,	18
Pork,	3500
Sausages,	4000
Peddings,	200

Total amount, wt. 86731

The above is the fair, and just enumeration of meat killed by Wm. White, Victualler, assisted by his brother Victuallers; and exhibited and sold in the Philadelphia Market, on the 15th day of March, 1821. The whole was sold in one day.

FOR THE AMERICAN FARMER.

TABACCO.

ADVANTAGES OF LOW TOPPING.

SIR—It is somewhat surprising, that, in those parts of Maryland where tobacco has been almost “time out of mind”, the only staple, the advantages of low topping should not have been sooner and more justly appreciated.

It can only be accounted for, from that indisposition which “*we gentlemen in the country*” have to innovate upon the established usages of our fathers.

Whatever is valuable in the habits of our ancestors, we are apt to discard, as being too tried and old fashioned for the fastidious delicacy of modern taste; but we cling with pertinacious attachment to errors which the progressive improvement of the human mind are constantly developing, merely because “our fathers did so before us.” The practice *here* has been almost universally to top high, and to suffer the tobacco to continue in the field to give the top leaf an opportunity of making;—this rarely happens until many of the bottom leaves (which are the best part of the plant) are lost, and when it does, unless in very rich land indeed, the whole plant is but an epitome of what it ought to have been, if topped to a proper height.—It is very well known that our broadest leaf tobacco is held in the most estimation in Europe, as well as by our own manufacturers of the article at home.—According to the old, I should have said the present mode of topping high, the proportion of broad leaf, to the whole quantity made, is very inconsiderable. Where the land is good, a few of the lower leaves may stretch out to a tolerable width, but as you approach the top of the plant, each leaf becomes narrower until it terminates in “tail ends”—a description of tobacco very well known to the shippers for the heavy refraction which it occasions in the European markets, whenever it can be detected.—Another great,

and (now that we are increasing the size of our crops,) serious disadvantage arises from the *delay* which it occasions in the *ripening* of the plant, and the consequent less time allowed for securing the crop before frost. Every planter must know that early housed tobacco cures the best with, or without *fires*. Our seasons are very variable, and it would seem are becoming more so every year. Sometimes we have frost even in Sept.—frequently the first week in October—but I have known, as was the case last year, this inveterate enemy to tobacco not to visit us till late in November. Still the best made, and ripest tobacco will not *cure well*, if housed *late in the season*; for if *fired*, the weather being cool, and particularly the nights, the house cannot be made hot enough for the process of curing with *safe fires*; and if not *fired* it cannot have the benefit of the hot sun, and warm dry winds which happen in the less advanced stages of the season: besides, tobacco sometimes rots bites in the house as well as in the field.

The late Governor Bowie and B. Oden, Esq. were, I believe, the first to introduce “*low topping*” in this neighbourhood. When I first saw their toppers at work, I was amazed that they should despoil the plant of so many of its leaves—I could not persuade myself that they did not lose one third of the crop which the land was capable of producing. One advantage even then, with all my prejudice against it, I could discern—there would be no “*tail ends*”—all the leaves must be large, with a small proportion of seconds or trash to the plant. I assure you it was with trembling anxiety and fear, that I ventured for the first time to order the whole of my crop of the last year, topped to between twelve and fourteen or sixteen leaves—but how soon was I reconciled to the experiment when I saw each plant magnifying its size considerably beyond the growth of any former crop.—One of my neighbours walked with me the other day, to a tobacco house, where my people were stripping. We stripped five plants separately, (they were the largest we saw where we were standing) and took them to the house—they were weighed a few days afterwards, and yielded 2½ pounds.

In the Forest of Queen Ann, where a large proportion of our best tobacco is raised, they top generally to from 20 to 22 and 4 leaves.—Having succeeded by this method of “topping”, in acquiring a high character for their tobacco at home and abroad, they cannot believe that the *quality*, or even the *quantity* of their crops will admit of further improvement.—These gentlemen certainly deserve the highest commendation, for the skill, management and industry with which they conduct their farms—but in regard to “topping”, they will give me leave to urge they have something yet to learn, and that something trifling as it may appear to them, is of essential consequence to the *quantity* and *quality* of our staple.

It is a very gross error into which many of our planters have fallen, that *large tobacco*, (the largest that we are in the habit of making) in *our soil and climate*, will not *cure as well* as that of moderate size, raised on the same land.—If it has *more leaf*, it has still the same pro-

perities—tis but an increase of a good thing—Let the tobacco be *well made—thoroughly ripe*, and housed in *proper time and manner*, and the objection will be found to be perfectly illusory.

It should be taken as a postulatam, that *that system of cultivation is best*, which will give to the plant, the *most leaf of the best quality*, to the *smallest stalk with the least labour*.—That the leaf will be broader, and of course more productive by “low topping” no one will deny—that the quality will be as good if *not better*. every one must admit who will make the experiment,—that the stalk will be smaller, is not only reasonable but certain—and in consequence of the tobacco ripening earlier, it will generally save at least one working, and being housed sooner than it otherwise would be, is removed from that dangerous enemy the horn worm, to destroy which, sometimes engages almost the whole of the planter's attention to the great loss and damage of his crop.

I have said that the *quantity and quality* of our staple was affected by “high topping.”

The greatest part of our Maryland tobacco is manufactured at home in cigars, or consumed on the continent of Europe.—That the broad leaf tobacco is best for cigars, is *evident from the appearance* of that manufacture itself—and that it is preferred in the European markets is manifest from the preference always given to it, when it can be had of equal quality.—In a word every advantage intended by the *customary mode*, may be accomplished by the *proposed one*, with the increased benefit of *making more, and getting more for what you make*.

A PLANTER,
of Prince George's.

MR. JOHN S. SKINNER.

I know that you will scold me for not giving my proper name to the above—but as the method is so contrary to general usage, it would involve me in constant discussion with a set of people who must have time to see and correct their errors.

SUBSTITUTE FOR CLOVER IN ANSWER TO X. Y. Z.

In answer to your correspondent, X. Y. Z. in No. 1. of your third volume, as to the best substitute for clover and plaster, advise him to try the Carolina field pea, sowed broad-cast, at the rate of from one to two bushels to the acre, at any time between the 1st of June and 16th of July, the earlier the better, and the poorer the land the more seed to the acre, they should be covered but lightly; say an inch to two inches at most, and after the frost has killed the vines, to plough them in as deep as his soil will admit. If sowed any time in June, the vines, if the peas are of our earlier kinds, will have as many peas ripe on them as will answer for seed the ensuing year, even as far north as Maryland.—In this state (North Carolina) they will have from 5 to 10 bushels to the acre. The peas that have ripened, should be picked for seed, or for eating, before the vines are ploughed in. There is a great variety of these peas—some white, some speckled, some black, others yellow and red. Some ripen earlier and others later, but all affording a fine shade to the land, by their broad leaves and running vines, and may be obtained in any quantities at our sea ports, at from 40 cents to a dollar per bushel. The white

kinds are generally sold for the use of our seafaring people, and are higher priced. The black, yellow, and red kinds are gleaned by our fattening hogs and cattle, except what are necessary for seed the ensuing year. Every farmer in this part of the country has a hill of peas, for every hill of corn he plants; and they cover the fields with their vines, thereby contributing, no doubt, to keep the land from being worn out as fast as it otherwise would be. &c.

Copy of a letter from Benjamin B. Cooper, of Cooper's Ferry, New-Jersey, to his friend in the Western Country, on the culture of Mangel-Wurtzel, Ruta-Baga, Cabbage, Potatoes, Peas and Beans, with observations on soilings, fences, &c. communicated for the AMERICAN FARMER, by the writer, as practical results, more to be relied upon than theories.

MY DEAR SIR,

In answer to your's, respecting my experiment made in 1820, with Mangel Wurtzel, Ruta Baga, Cabbage, Potatoes, Peas and Beans; I have to observe that, as much had been said by Cobbet, & others, respecting different crops that had been, or might be raised in our country to advantage, I was determined to encounter prejudice, and not to follow the beaten tracks of our country, which enables me to give you a practical result, the prices they are sold at, and amount per acre.

No. 1.—Mangel Wurtzel, per acre, 864 bushels at 25 cts.	No. 2.—Ruta Baga, do. 648 do. 25 —	No. 3.—do. do. 540 do. 25 —	No. 4.—do. do. 432 do. 25 —	No. 5.—Cabbage planted two feet apart in rows three feet apart give 7,200 to the acre, average about 2 cents each, 144 00	No. 6.—Potatoes, per acre, 180 bushels, at 50 cts. 54 00	No. 7.—Lady Peas do. 27 do. 75 —	No. 8.—White Beans do. 22 1/2 do. 1 00 —
\$216 00	162 00	135 00	108 00	144 00	54 00	20 25	22 50

I planted the seed of the several crops in rows three feet apart, taking care at the time to give each an equal quantity of manure; the Mangel Wurtzel, planted on the 15th April; the Ruta Baga as follows, those producing the greatest quantity, on the 20th day of June, the tops were long, the hulbs large and hollow—the turnips stringy when boiled, though eaten greedily by the cattle—those producing the next greatest quantity, on the 10th of July, the tops much shorter than the first hulbs round but few hollow, and keep well, the last planting

on the 1st of August, was perfectly sound, better flavoured and preferable for the table. Cabbage planted 15th of June, Potatoes from the 20th to the 25th of May, Peas and Beans the 10th of June. I gave each a fair trial by ploughing and hoeing them in season, in soil of a middling quality, and from their product, I am inclined to believe that in all the old settled counties, particularly in the vicinity of cities, Mangel Wurtzel, Ruta Baga, and cabbage might be raised for stock to a much better advantage than the grain crops so generally cultivated; they would ameliorate the soil rather than exhaust it, produce a great saving in land and fencing, and at the same time improve the condition of their cattle, and increase the quantity of their milk and manure.

To what extent have we practiced our folly in division fences that tend to exhaust rather than enrich our lands? Suppose a farm of one hundred acres is divided into ten acre fields to enable the cattle to tread and graze upon them, what can we expect, but to see the surface made naked by our herds, and become exhausted by a parching sun? Providence gives us a covered surface, and it becomes rich from the dews, frosts, rains, &c. retained on the soil to ameliorate it. But we contend against his enriching treasures by keeping a naked surface and impoverished soil, at great expense of fencing. In this country it is only necessary to have an inclosing fence, and the adjoining landholders have to make one half each. So that but one half of the necessary fence about a farm need be made by the owner. A farm of one hundred acres is nevertheless, usually divided into ten acre lots to ornament the farm, and feed the folly of the owner—the expense of which, in this neighbourhood, is one dollar, a pannel of ten feet, say one dollar and sixty-five cents per rod. Division fences, exclusive of lanes, garden fences, &c. 632 rods amount to \$1042 80—interest of which in Jersey, is \$52 3 3/8—the perishable loss annually of the fence, much greater than the interest; the expense of labour in keeping fences up to avoid trespass and loss, equal to either—who then among us cannot get milk, butter and cheese at our doors for half what our fences really cost, and at the same time save principal and enrich the land or soil, since the cattle necessary to be kept may be supported at one fourth of the expense of grazing them, by cultivating roots and cabbage on a part of our farms in the rotation of our crops?

Your's
BENJAMIN B. COOPER.

The value of Mangel Wurtzel, as a food for cattle, compared with other roots and cabbage, and the benefit that will be derived by those who cultivate it for that purpose, may be clearly seen by applying the results of chemical analysis to the quantity of each crop raised per acre, under similar care and circumstances by Mr. Cooper. He has given us the money value of the several crops, which is an interesting and acceptable view of them—but as this will be different at other places, or in the same place at different times, we have thought it advisable to append a calculation as to their nutritive value; inasmuch as this will offer an unvarying and more general argument.

Starch-Sugar-Gluten-Total Bushels		Of		Starch-Sugar-Gluten-Total Bushels		Prices	
13	119	4	17	11	103	3	864
9	51	2	62	5	27	1	12
41	24	8	73	33	19	6	1900
178	17	35	230	92	3	6	1600
501	22	35	358	133	0	15	500
420	0	103	539	23	1	200	43
				223	23	104	207
						98	

Sir H. Dorey, found the 1000 parts of bushels of the vegetables mentioned in this table, containing

Therefore the crops raised per acre by Mr. Cooper being

Contained of nutriment, bushels of

If of Mangel-Wurtzel, we can raise 864 bushels per acre, containing 33 3/8 parts of nutriment, and the root be worth 25 cents per bushel, private crops and prices will be found below, in a line with the other crops, founded upon the nutriment contained in each.

crops of Turnips, Ruta-Baga or Potatoes, with equal certainty, or when successful, in as profitable quantity.

By the table, it appears that an acre of land will produce 846 bushels of Mangel-Wurtzel, containing 117 bushels of nutriment: and by calculation it will be found that an acre must produce, in order to be as profitably employed, if in Ruta Baga, about 1900 bushels; in cabbages at 9 heads per bushel, about 1600 bushels—in Potatoes about 500 bushels—in Peas or Beans about 200 bushels—crops that we cannot expect to obtain from an acre of land, since those made by Mr. Cooper fell so far short of them; although raised with the same care that produced the crop of Mangel Wurtzel. We submit these reflections confessedly, without much experience either in the cultivation, or use of these vegetables in feeding stock. But we have seen enough of both, to predispose us to believe that Mangel Wurtzel as a crop, is not only more certain in this climate, but more valuable than any other root. We have seen hogs, sheep, calves and cattle, prefer it to Ruta Baga. Bushel for bushel, we cannot doubt that it is twice as nutritious as that valuable turnip. Sir Humphrey Davy has ascertained that it contains twice as much soluble matter, and that their several principles bear very nearly the same relation, as the whole. That more bushels can be raised per acre, may be fairly concluded from the experiment of Mr. Cooper. If then, the crop is more certain, more nutritious, otherwise much larger, and always preferred by live stock, why shall not farmers prefer its cultivation to that of Ruta Baga, or Potatoes?

[Edt. Am. Farmer.]

For the American Farmer.

ON DEEP PLOUGHING AND THE CULTIVATION OF INDIAN CORN.

MR. SKINNER—You have regretted to me that you did not receive more communications from North Carolina, a state from which you numbered so many respectable patrons to your paper.—It is to be lamented that there is not more interest felt and displayed in this state on the important subject of agricultural improvement; more especially so, when it is considered that North Carolina is almost entirely Agricultural, as the number of those engaged in other pursuits, can be said to bear hardly any proportion to the vast majority engaged in the cultivation of the Earth. Why does not this state emulate the noble examples set by Massachusetts and New York? who have so munificently patronized agriculture; who have by Legislative acts, given new life and energy to agricultural improvement, and what is not to be disregarded, added highly in the public eye to its importance and respectability, by the fact that their most distinguished citizens were the most forward to promote so laudable an object. If there is a state in the Union where Agriculture eminently deserves to be encouraged and patronised, it is in this, where nature has been so liberal of her gifts—a highly diversified, but generous soil and varied climate, offer to the cultivator, as a rich reward for his toils, the most valued productions, either for

sustenance, commerce, or manufactures—and the numerous Rivers which intersect the state, are so many facilities, if their navigation was skillfully improved, for conveying those products to ready markets. Let the motto of every Carolinian be, "Honour the Plough!", and let us duly appreciate the great natural advantages we enjoy, and skillfully improve them, and we shall soon reap the rich harvest of Individual Wealth, State Prosperity and State Importance.

But to return to the subjects of this communication, which is to offer some remarks on deep ploughing, and the cultivation of Indian Corn. Several of your late numbers have contained remarks as to the best modes of ploughing and cultivating corn, and as there appears to be a difference of opinion among your correspondents, I am induced to offer you mine, sanctioned by experience.—The most important point to be attended to in the cultivation of Indian corn, and upon which the success of all other operations depends, is deep ploughing. The Maize is a "little tree", and has roots correspondent to its size, which strike deep into the earth for sustenance, and hence require a deep stirred soil for this purpose. But how is deep ploughing to be most easily and effectually attained? I answer by cultivating corn in ridges and furrows. By the aid of these, we are enabled to stir a soil much deeper, with the same draught, than we could do upon a flat surface, and in less time too. This is an advantage gained by the position of ridges and furrows—it is very important, and one which I suspect few have rightly considered. If I were asked what was the first and cardinal principle to be steadily kept in view, in the improvement of land, I should answer, the gradual deepening of the soil. I would rather dispense with manuring than deep ploughing, because a soil that was once originally good, may be brought back to its pristine fertility, (however exhausted) by deep ploughing, rest and change of crops without the aid of animal manure. Let us suppose a field in the position of ridges and furrows—the ridges five and a half feet apart, from centre to centre, with deep and wide water furrows between them, and that it is to be broken up for Indian corn. I would proceed by reversing the ridges & making the new ridge over the old water furrow; in doing this, much labour is saved in ploughing, because the deep water furrow enables the plough to cut off a wide slice* on each side of it, by which it is filled, without needing itself a touch of the plough share, leaving a strip of the old ridge, so narrow, that a large trowel-hoe† plough with two mould boards, may split it. And thus three furrows reverse ridges of five and a half feet wide. The old water furrow enables the ploughing to be done deeper than could otherwise be effected, as it is a receptacle for the two slices by which it is filled; and these

* Slice means the earth raised and turned over by the plough into a furrow.

† Let furrow be appropriated to the space in which the plough moves. And the small hollows that appear between the slices when a ridge is ploughed, may be termed *scams*.

† See 2d vol. of the American Farmer, pages 195 and 349, for this implement.

By taking this view of Mr. Cooper's crops, it will be seen that the acre of land cultivated in Mangel Wurtzel produced twice the quantity of nutritive substance contained in either of the others, and that nearly all of this was saccharine matter. With this principle, in the form of sugar, trials have been successfully made in England to fatten hogs, calves and cattle. And, next to gluten, it is known to be the most nutritious vegetable production. Of these experiments with sugar, we will insert enough, in the next number of this work, to convey precise impressions as to the value of that principal in food. And we will then likewise give an account of the cultivation of Mangel Wurtzel at St. Helena, in support of the opinion that this root may be more successfully cultivated than any other in the States south of New-York; wherein the summer heat and drought are usually so protracted, as to prevent our raising

leave wide and deep furrows, to receive each a moiety of the residue of the old ridges. The deep ploughing, and complete subversion of the soil, produced by the strength of three horses, with the advantage of the water furrow to receive the slices, bury seeds so deep, that few can pierce the tegument, which greatly facilitates the culture of the corn crop. If the ploughing has been well executed according to the mode just described, it will be found by running a stick into the centre of the new ridge that, it will penetrate a mass of loosened earth ten or twelve inches deep, before it reaches the hard pan below, and precisely too in the place where the Indian corn is to stand and grow, which gives fine scope for its roots to push forth deep and vigorously in every direction; and should there have been turned under a good coat of vegetable matter, it is buried so low by means of the deep and wide water furrow, which is a receptacle for it, as not to be disturbed in the after cultivation; and moreover, the corn is enabled to be planted, and to sprout in a bed of clean earth above it. By the advantages of high ridges and deep furrows, you not only gain a much deeper tilth, but you do the work in less time, (by reversing five and a half feet ridges at three slices,) than the same ground could be ploughed by flushing it into a flat surface.

PLANTING commences by opening a furrow in the centre of each ridge, by a trowel-hoe plough having two mould boards, and I endeavour to have the furrow as deep as practicable, without disturbing the vegetable cover turned under below, in order that the corn may be planted deep. My reasons for deep planting are these: when we first commenced the system of ridging in this section of the state, we committed the error of not opening the ridge deep enough, and of planting the corn too high; the consequence was that the corn did not take good root, that when it grew large, it fell down by its own weight, and that every gust of wind prostrated it injuriously. But since it has been planted deeper, much labour is saved in putting dirt to the corn, for if there is a mass of loosened earth around, the roots will take a wide and sure hold on the soil and will stand up well.—I have a machine for covering the seed corn which effects a great saving of labour. With it you could cover as much corn per day, if drawn by a brisk walking horse as ten hands can drop; it is of quadrangular shape, light

† There never was a more absurd practice in Southern Agriculture, than the old one of billing up corn with hoes at the time of "laying by the corn." This practice consisted in making a large conical hill immediately around the stalk of the corn, by taking the dirt with broad hoes from a space of two or three feet circumference around the stalk; which was in fact taking the dirt from the place where there was the greatest mass of roots, and putting it where it was to do an injury by stifling those prop shoots which, the stalk puts forth at the surface of the ground to support it against winds. In deep and well pulverised ground, the greatest ramification of corn roots will be found at some distance from the stalk, and there is no necessity under such circumstances, to aid the stalk by a hill of dirt immediately around it, as it will in such a prepared soil, if let alone, deep root itself.—See this practice exposed in Thomas Moore's work on "The errors of American Agriculture."

and easily managed by a boy—the fore part consisting of teeth, knocks off all the clods that may be found on the ridge, whilst the hinder part covers the corn with the loosened earth, and all done at one stroke of the machine. It is equally well adapted to cover all other drilled crops, such as peas, cotton seed, sweet and Irish potatoes, &c. As soon as the corn is fairly up, the cultivator is introduced, an implement which cannot be too much valued by those who raise drill crops. It is drawn by one horse, penetrates to the depth of six inches, (where the ground has been previously deeply ploughed,) effectually stirs and loosens the earth, destroys grass and without exposing the soil to the sun. After the cultivators have gone over the corn, they lie by until the grass begins to appear, then they are again introduced, the hoe following.

But the hoe work is light, as the hoers have only to weed about four inches wide along the line of the corn, on the centre of the ridge; boys of twelve and fifteen years old, easily keep up with the grown labourers at this business. The cultivators at one stroke clean the ground, from near the corn out to the edge of the middle water furrow (and this middle furrow is kept open and clean by the trowel-hoe plough) so that only two strokes are run with the cultivators between each row of corn. The corn is then left to grow until it gets about waist high, which will be about the 10th or 15th of June, it then receives the only ploughing which is given it during its cultivation. Agreeing with "Furius Cresinus," in one of your late numbers, "I dare not dispense with ploughing altogether in the cultivation of Indian corn," although in dry summers, I believe the cultivators would be sufficient to make the crop, with the necessary hoe work after planting. This ploughing is done with a mould board plough, drawn by two horses, and only one furrow is run on each side of the corn, with the mould board next the corn. This furrow is run so far from the corn, that the earth raised by the mould board, will not quite reach the corn, but be left on each side of it, so as to form a narrow trough on the ridge along which it stands; the hoes follow for the second and last time, and chop what grass may be found along the line of the corn, and level the ridge by filling up the trough left by the ploughing. Arator observes in pages 102 and 106, "this ploughing being the only deep one received by the corn after it is planted, being bestowed upon it whilst it is young, and its roots short, and being run near a foot from the roots of the corn by this mode of culture, wholly escape injury, and the effects of drought on the plant being thus diminished, its product is increased." Again, "Its roots are never cut in one direction, and this great depth of tilth thus early obtained, by superceding the occasion for deep ploughing in the latter period of its growth, saves them in the other." More corn has been destroyed by ploughing it too late than by any other mode whatever. It has frequently pained me to behold the plough introduced into the fields of corn just shooting into tassels—its roots are cut and lacerated, a drought ensues, the corn loses its green and fresh appearance,

becomes shrivelled and stationary in its growth, and by this untimely ploughing (unless the season is extremely favourable) dwindles to half a crop.

After the corn is ploughed, the cultivators may again be introduced if necessary, until the corn acquires such size as to shade the ground, and not to be injured by any grass that may appear. It should have been observed that the trowel-hoe-plough, with two mould boards, is occasionally run once in the middle of each row, to keep open the water furrow. Our ridges are laid off on a horizontal level, and it is necessary that the water furrow, be kept deep and wide by the trowel-hoe-plough, to hold superfluous rain, and thereby prevent the soil from washing.—Of this implement so indispensable in the system of ridging, I would remark that by laying aside the coulter on the point of the hoe, and by substituting a strong rod to pass through the hoe and the beam, and keyed above, that it works much better; in all my trials, I found the coulter a complete incumbrance, and was almost the cause of my despairing of the use of an implement, without which I would abandon the ridge system. In the hope that some of the hints contained in this communication, may be useful to the patrons of your high valued paper in this State, where the mode of cultivating corn, herein recommended, is rapidly spreading.

I subscribe myself, yours, &c.

GEO. W. JEFFREYS.

Person County, N. C.

THE FARMER.

BALTIMORE, FRIDAY, APRIL 27th, 1821.

☞ The Index, is unavoidably delayed a few days longer, owing to our Printer having to get some additional type; we have studied to make it full, and we hope it will be found satisfactory.

Bread, stuffs and grain have during the past week experienced some rise in price, as will be seen by the present quotations.

PRICES CURRENT.

Flour, from the wagons, \$4 12½—Wheat, from do 24 cents per gallon—Hay, per ton 16 to \$17—Straw, 70 to \$8—Wheat, White 85 to 87 cts—Red, do 75 80—White Corn, 30 to 31—yellow, do 32 to 33—Rye, 37½—Oats, wharf, 22 to 25 cents—Barley, a cargo of 1300 bushels sold the last week for 30 cents per bushel—Cod fish, per quintal, wholesale \$3, retail do. \$4—N. Eng. Beans per bushel, \$1 12½—ditto Peas, 75 cents—Plaster in stone \$6 per ton—ditto ground \$3 per do; do do in bbls. \$1 37½—do. do. per bushel 13 cts—N. O. Sugar, 750 to 10—Muscovado, do. \$7 50 to 9 25—American White Lead, \$12 50—Ground, do. \$13 a 14—Linseed Oil, 75 cts—Feathers, 40 to 45 cts—Potatoes, N. Eng. per bushel, 75 cts—Cotton, Upland, good quality, 12 to 14 cts—very dull—Shad, new, \$6—Herrings, \$2 75, declining—Fine Salt, wholesale, 42 to 45—Ground Alum do. 45 to 48—St. Ubes, 50—Cads, 38 to 40—retail do.—Turks' Island, 75—Cads do. 60—Ground Alum, 60—fine, 60.

MARYLAND TOBACCO—Sales present week—A few hids. very fine from St. Mary's Co 6 25 to \$7 50—do do. good quality, 4 to \$5—Seconals, 2 50 to \$3—E. S. do. good quality, 4 to \$5 50—Seconals, \$3—inferior, no sales—Wagon Tobacco, none in market—Patuxent, do.

VIRGINIA TOBACCO, 2 hids. new crop, sold the last week for \$6.

KENTUCKY TOBACCO, 20 hids. new crop, \$5 75.

The prices of the other articles as stated last week.

PUBLISHED BY JOHN S. SKINNER.

A MERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatus nimium sua bona novit
Agricola." VIRG.

VOL. III.

BALTIMORE, FRIDAY, MAY 4, 1821.

NUM. 6.

AGRICULTURE.

REPORT

Of the Committee on Manufactures, on the various memorials praying for, and remonstrating against, an increase of the duties on imports. January 15th, 1821.

[We extract so much as particularly relates to the interests of agriculture.—Ed.]

The Committee Report:

That they have directed their best attention to the subjects submitted to them by the house, and felt it their duty to state their views fully and freely, so that it may be enabled to act with promptitude. It is certainly time that the propriety of extending protection to the objects now claiming it, should be finally settled; the nation expects, and their interests demand it.

There can be no measure of sound policy which impairs the interests or checks the pursuits of agriculture; the committee, therefore, do not inquire into the expediency or justice of sacrificing agriculture to manufactures; they will confine themselves to the question, whether this bill, or the system for which it lays the foundation, tends to aid the latter at the expense of the former. Agreeing in this principle with its opponents, the solution of the question depends more on fact than reasoning.

It contains no direct tax, duty, or assessment, on the products or occupations of agriculture; it touches nothing of domestic origin; to this there must be general assent. If it imposes a duty on articles other than manufactures it is solely for revenue, which all admit is wanted, and which the opponents of the bill say is raised by impost from the farmer with less inconvenience than any other mode. If the additional revenue thus raised, to supply a deficit occasioned by its decrease on articles of manufactures, does not increase the aggregate amount of revenue, then are no new burdens imposed on the community; it is only a new apportionment, which becomes more or less grievous, as articles of manufacture are more or less, in comparison with others, necessities of life. He who consumes imported articles pays a tax; there is none on domestic; if, by its substitution for foreign, there is a loss of revenue, which is added to the duty on some other, it is a gain or a loss as he consumes the one or the other article. The poor farmer, who has substituted rye for coffee, would be gainer by an increased tax on that, and a reduced one on iron and clothing. To the one who preferred coffee, the amount of tax would be the same. Admitting that, by the mass of the nation, the consumption of coffee would be the same with a higher as the lower duty, and the reduced price on iron and clothing enabled them, with the same means, to pay the advanced price on this, then, in a national point of view, the only question would be, whether it bears the hardest on those best or least able to bear it. This will depend on a comparison of the articles affected—which were necessities and which luxuries: in classing them generally, they are dye woods, dyo stuffs, drugs, clothing, furniture, utensils and instruments of occupation, on the one hand; groceries on the other. In applying this discrimination to the two classes, and the items of each, it will not be found that the rates of duty are peculiarly onerous to the poor, or the cultivator of the soil. When it may be thought to exist, allowance must be made for the small bulk or weight when compared with the value of the article as a temptation to smuggling. It is conceived, therefore, that the relative rates of duties afford no colour for the imputation of hostility to agriculture.

But the great objection to the bill—the one which is pressed in all the memorials as the foundation of all the opposition—is, that the increase of the duty is, of course, an increase of the price to the consumer.—This is admitted to be true as to those articles, the sole supply of which is by importation; but no further. Even here the increased prices accrues to the public treasury, it cannot go to the manufacturer till he brings his products to market and sale; before he can profit by the rise, he must check the foreign competition by acquiring a part of the supply or custom; he cannot do this by exacting a higher price, unless the quality of his goods is proportionately better; he must sell as cheap, and furnish articles of as good a quality, or he cannot begin his operations; they can be continued by no other means. If he puts down foreign competition, and monopolises the market, it must be by making better or selling cheaper; and by such a amount as will equal the freight and importer's profit, for importations will continue while the articles will yield either. If the market should be divided between the foreign and domestic supply, it would keep both at the same price, and, while this continued, operate as a tax to the consumer; it would be temporary or not as the country would afford the means of furnishing a sufficient amount for the demand; if it would, and the price afford a profit to the maker, the competition must cease, by reducing it so as to exclude the foreign; if the country could not produce enough, the policy of imposing more than a revenue duty might well be questioned. But true "economy to the consumer" would be a permanent reduction by a mere temporary increase of the price. There can, then, be but one class of manufacturers, a high duty on which can tend to the benefit of the manufacturer at the expense of the consumer; those of which a competent supply cannot be furnished from our own resources; if such are discernable in the proposed measure, it ought not to be an object to retain them for the mere emolument of the manufacturer. The great articles of consumption are such as can be supplied from our own soil, and by the employment of our own labour and machinery. It is a fact which cannot be too often repeated, which has been verified by every experiment, confirmed on every trial, that, when the domestic market has been secured to the domestic manufacturer, domestic competition has reduced the price to the consumer. Every family in the country which consumes coarse cotton goods is now deriving a direct and positive advantage from the high duty on any manufactured article in the present tariff: it is of a better quality and at a cheaper rate than the article was before imported. No theory, no argument, can reason away this fact; it carries conviction to the understanding; the price, the quality, is practical economy, political as well as personal; a saving to the nation and the individual. It is not a solitary item in our experience; nails, gunpowder, umbrellas, cotton and wool cards, present the same results. The purchaser finds these articles at a reduced price, without asking the cause; he may be an active, a conscientious, opponent to the encouragement of domestic manufactures—may have heard the charge of their being a "tax on the many, a bounty to the few," repeated so often, that it becomes impressed on his belief, while, at the same moment he is deriving a pecuniary gain from their success, after they have attained the height of their efforts, the command of the consumption. Thousands are reaping the profits of a competition among manufacturers to acquire employment by a cheap and good supply, while they are labouring under the imputation of conspiring to oppress; as to many items of which they cannot furnish a full supply, they are enabled to

check foreign extraction, and, without duly appreciating it, the country is deriving great benefits from their enterprise.

There would seem to be no reason for apprehending different results from the further extension of the same principles which have hitherto produced these general effects; if there are the same materials and skill, which can be applied to the finer fabrics; there can be no more danger in their exclusion than the coarse. Cotton, as an item of clothing, is as much a necessary of life, and gunpowder of defence, as any other; daily and profitable experience teach us that we are secured from imposition by leaving the supply of these articles in the hands of our countrymen; there may be as much safety in giving them that of woollens and iron.

The experiment has never yet failed, and those who wish to try it on new objects believe it never will.—Those who doubt or fear its success, should at least be willing that new subjects should be brought to the test of the principle. Without some act of legislation the country must be forever divided in opinion, and her councils agitated by petitions praying for, and remonstrances protesting against, a measure. If it was the introduction of a new feature into our code, it might well be left to the deductions of reasoning—being but the application of an old and original one, coeval with our first act of fiscal legislation, the lights of experience come fairly to its aid. When facts are admitted, and reasons may exist in favour of a proposition, the opposition to it ought not to rest on reasoning and assertion only; some one fact or instance should be required to do away the conviction which has been caused by many. Admitting that on this great question, of the encouragement of manufactures the arguments, tending to prove that there will be a consequent reduction of price, are balanced by those which are offered to show that they will be increased, and the mind thus left in doubt, and it cannot be expected that any further admission can be made—admitting that an uniform series of experiments had been successfully tried for thirty years, and all resulted in the decrease of the price of the article, protected by an increase or high duty, it would be strange to contend that this should not turn the scale. In the numerous memorials on this subject, our researches have not enabled us to discover one case mentioned which has supported the objection—we have been furnished with none from any other source of information, and must therefore believe there is none. On other subjects it is conceded that experience affords the safest guide—no good reasons appear why we should exclude it from the investigation of this. When it shall sanction this objection, its full weight ought to be allowed, until this is given to it, while it contradicts it, we cannot yield to its force.—It may not be considered unfair to make a reciprocal application of this rule—if the uniform consequence of giving the domestic manufacturer the command of our market, by the imposition of high duties on foreign products, had been to increase the price to the consumer, and he grown rich by a tax on the country he would be thought to present himself before congress with poor claims to furnish him with means of increasing the tax under the name of protection to him—it would be a conclusive answer—experience is against you. May not the same answer be given to this objection? It is supported by nothing but itself. Hitherto the profit of the manufacturer has been a saving to the nation—no reasons have been given why it may not be so for the future—it is time enough to give way to the objection when there shall be the same weight of facts to support it, that there exist to remove it. Let the cupidity of manufacturers be what it

may, it can never be grafted when there is no prohibition—foreign supplies must be an effectual security to the consumer, if domestic competition is not. It has never failed for, when a people so eagle-eyed as ours are at liberty to select the occupation of their labour, capital, and skill, discern that inordinate or unusual profits accrue to any particular manufacture, the same self-interest which looks to its own gratification will direct their application to the same object, and thus reduce the profits, to what is a reasonable compensation. The danger of prohibition is thus averted. If there is reasonable ground to apprehend that this competition may not be an effectual check, prohibition may be avoided unless required as the foundation of an excise. Where the object is merely protection, a high duty will suffice—the increase of price can never be beyond the duty—according to its rate it might support an excise on the article protected. It is confidently thought that, even allowing to this objection its possible application, the proposed addition of duties does not throw the consumer into the power of the manufacturer. Very far short of prohibition, the bill does not come in the way of an argument, which would appear to apply if at all to a system not to be found in any duty proposed. There must have been some misapprehension on this subject: the measure so much decried is one which it is said will destroy alike revenue, commerce, agricultural, and mechanical labours; the objection cannot be good as to all and in part at least must defeat itself. The average rates of the ad valorem duties are about 28 per cent.; now, if this destroys commerce by withdrawing materials for carrying, and revenue by stopping portations, the evil must stop here, and cannot reach the farmer—if the price rises in proportion to the duty the merchant can still afford to import—the government will still receive tax—it can only be by a fall in the price that commerce and revenue suffer—it must bring the article cheaper to the consumer—if smuggled it must reduce the price, as it then comes to him duty free—by all these operations the farmer gains. That an argument intended for a prohibition must be fallacious as to a moderate, or if it must be called so high a duty, is evident from these and other reflections which will occur to every mind, unless the mode of paying the manufacturer is more oppressive than the merchant.

This is an important inquiry; the mode, the means of payment constitute the real price of an article purchased; if a bushel of wheat will buy a yard of linen, it may be supposed an equivalent exchange, and each article worth, say one dollar—it remains equal while the merchant will take wheat at one dollar—when he receives it at fifty cents, either linen has risen, or wheat fallen, one half—of no consequence which; it requires two bushels of wheat to purchase one yard of linen. A few years since it was the reverse—one bushel of wheat would buy two yards of linen; comparing the prices of the two periods with the means of payment, linen has become increased four fold, as it takes now as much wheat to buy one yard, as it did formerly to buy four; linen is therefore four times as dear. Cloth sold five years ago at twelve dollars per yard; six bushels of wheat, or six pounds of fine wool would pay for it; now it requires twenty-four bushels of the one, and twenty-four pounds of the other. To keep up the uniformity of price, and bring these articles as cheap to the farmer, linen should be reduced to twenty-five cents, and superfine cloth to three dollars a yard. The farmer being able to buy one yard when he can pay the easiest, he must ask who will give him the greatest quantity of what he wants for the smallest quantity of what he can spare.

The foreign manufacturer of linen and woollen is prevented from purchasing flax, or flax, or woolen; the importing merchant cannot pay in those articles, and cannot receive them from the farmer in payment for the goods. If the farmer buys them, they afford no additional demand for his produce; he, at all events cannot be benefited by the foreign manufacturer, or domestic importer or retailer, because neither afford him a good or bad market; they give him none at all; nothing can be received but his money; to whom must he look for that? Evidently to other sources; to some

other foreign or domestic market. He then becomes indebted to those other sources, for his means of paying for these foreign manufactures; not to the manufacturers, or the sellers of them. These remarks will apply to all other articles for which the farmer cannot pay in produce. When foreign manufacturers, from compulsion or interest, will not take the provisions, or raw materials, from the consumer, the latter can claim no credit from them. If he must, in some other way, obtain the money to pay for them, he can be in no worse situation if he buys them from the domestic than the foreign, maker, so far, at least, as respects the means of paying him in products which he either will not, or cannot, receive. The full force of this remark will apply to the great bulk of foreign manufactures of every nation, and the agricultural productions of the northern and middle states. It is as correct in reasoning, as it is true in fact, that he later will not pay for the former. The gross produce of farms will not now purchase clothing, groceries and utensils, necessary for supporting the families of the farmer, raising the produce of the farms, and carrying it to market. The surpluses of one article, or various articles, will not enable them to supply the deficiency of another; one thing will not enable them to buy another; one will not pay for another—his own products are useless; those of others are beyond his reach. The obvious remedy, then, is to enable him to sell what he can spare; to buy what he wants. If foreign artizans will not give him broad cloth for wool, linen for flax, or either for flour, and the domestic artizan will, then one great object is accomplished; he has a market; he can exchange; one article will buy another at some rate of exchange; what that rate may be, will depend on mutual wants, and mutual interest. The farmer is no longer compelled to seek a money market; he has one for exchange; his product becomes as necessary to supply the wants of the manufacturer, as theirs to him, and each have a custom for their surplus. The great chain which forms the circle of society is composed of separate links, each link a distinct occupation—we may suppose a hundred. Take one hundred men, each pursuing a different calling, and separated from others; each deals with the other; one's surplus meets his neighbour's wants; the price is indifferent, relatively, it must be equal—one buys and pays for another; each having ninety-nine customers, is secured in employment, and a market for the fruits of his industry; it is permanent, and cannot fluctuate by any foreign action. This circle is independent, perfectly secured from imposition—for as each must have the products of the others, he cannot add to the price of his, without paying more for that which he must purchase; the price of one article must regulate the value of another. If, in this state of things, it should be found out that a foreign supply of the same articles, which are thus furnished from these one hundred different occupations, could be procured from the merchant at one-half the nominal rate of that which the farmer fixed by common consent, and each should decide on purchasing the imported article, then each must lose his ninety-nine customers. The merchant will not exchange, but requires money. Where is it to be procured? None can sell his products at half their value, because all have lost their market. There can be no exchange, and no means of raising money to purchase. It becomes an easy question to decide which is "economy to the consumer"—which is cheapest.

This comparison may illustrate the operations of society; they are all governed and controlled by mutual dependence and support; all tending to enhance individual, and promote public prosperity; they are the same; the nation suffers from the village only in extent, both being composed of individuals, and must partake of the qualities and character of its component parts; their interest must be national. In testing these principles by practical operation, in taking the above comparison to the actual pursuits of life, it will be found that the facility of exchange is the great ingredient in the prosperity of agriculture; the contraction of our wants, the extension of the means of supplying them, depend on the activity of this principle. In tracing its effects on the cultivators of

the soil, there has resulted a general assent to this position, that the farmer, who has the greatest means of exchange is the most prosperous, and less dependent on others, the more free to direct his labour to his most profitable production; the more he manufactures in his own family, the better security for a good, and against a bad, market. In accounting for the different appearance of two adjoining farms, their comparative state of cultivation, improvement, repair, and production, as well as the relative appearance of comfort and enjoyment, it is no bad criterion to examine the clothing of the owners and their families; their domestic or foreign origin will explain the appearance of the farms. But there is one rule which on the merchant's ledger; the balance on the debtor or credit side is the true touch stone of agricultural prosperity; why not of national? No instance can probably be adduced of a farmer being injured by manufacturing for the use of his family; of the value of his produce or land being depressed by the establishment of manufactures in his neighbourhood, or raised by their destruction; of the increase of the wealth, prosperity, or business of a town, in an increase rarely to its industry; of national power, resources, and independence, being endangered or impaired by the command of its own consumption, and means of defence.

Manufactures increase the objects, and facilitate the means of exchange. To individuals they afford a nearer and more accessible market, not liable to interruption by war or foreign policy. Roads, rivers, canals, oceans, are but highways to market; the conduits to exchange, the paths by which we send away what we can spare, and bring back what we want. The shorter, the less dangerous the path, the less the expense of travelling, the quicker the return, the more certain the exchange, the better for the producer and the consumer.—The more direct the exchange, the smaller number of intermediate agents, who are employed between the two classes, and who must all have their profits, the greater is the amount received to both on the article exchanged. The raiser of flax wants the manufacture—the maker of linen wants the raw material. If they reside near each other, the farmer takes his flax to the manufactory, and brings home his linen: no third person being employed, each receives the full value of his article; the farmer receives the full amount of whatever the flax is worth to the manufacturer; he the full value of what the linen is worth to the farmer. If the manufactory is in a foreign country, the farmer exchanges his flax with the domestic retailer, he remits it to the importer, he to the foreign exporter, he to the manufacturer, who receives it with all the intermediate charges and profits taken from its value to him. He sends back the linen, through the hands of the exporter, to the importer, he to the retailer, and it comes to the farmer with all their deductions. He then receives as much less linen in exchange for his flax as is equal to the expense of sending his flax to the manufactory and bringing back the linen in exchange. He and the manufacturer are both taxed to the amount of the charges and profits of the double transportation, which would be saved to both if the exchange was made on the spot. The nearer then that they can be made to approach each other, the better for both. It increases the means, and lessens the expenses of exchange. If it would produce this effect when the raw material will purchase the manufacture at any price, it would be of much greater advantage when it will not be received at all. Now, then, a linen manufacture can injure the farmer, cannot be perceived; or what more injury could result from his contiguity to those of woollen, paper, iron, glass, or cotton wares. They must bring his provisions, materials, ores, minerals, fuel, and a vast variety of small items from his farm, which cannot be exported, and are of no value when confined to a distant market, to a domestic one which will afford him all he wants in exchange. Such have been the effects in all parts of this country. Whenever there is an opportunity of making the experiment, it would seem impossible to be otherwise—whether it is the mill which grinds his wheat, or the

man which spins his flax, wool, hemp or cotton, it is the same thing to him as to the quantity of the manufacture he can receive for his raw material. Each is equally affected by the distance and expenses of transportation, which lessens their value.

The manufactories of France and England united do not furnish a market for one pound of our flour, wool, flax or hemp. The manufactories in Oneida county, N. York, consume annually, it is said, \$110,000 of agricultural productions, which are excluded from use by those who sell us manufactures to the amount of more than forty millions a year; and the few manufactories in the U. States consume more of our breadstuffs than the continent of Europe and the East Indies. For the farmers of this country must know, that the market for their produce is not in the countries whence they import their manufactures. It has been the policy of the government to tax at a high rate the produce of our good customers, and the produce of our bad ones at a low rate; and, strange as it may seem, this policy has never been deemed injurious to agriculture. When a high duty is imposed on the good customers of our agriculturists, there is no complaint from them, or those who are so alive to their interest. The island of Madeira consumed, the last year, of our produce \$233,928; British East Indies 5,740. The duty on Madeira wine is one dollar per gallon, on fine muslins from Calcutta twenty-five per cent. These cases are selected for illustration. The statistical tables of our commerce with other countries all tend to give the same practical answer to a different opinion, and to show its entire futility.

The course of trade and all experience prove, beyond a doubt, that the market for our produce does not depend on what we receive in return, and that the market for their manufactures afforded by our policy yielded us no equivalent. If the committee are mistaken in this deduction from facts, some reason must be given for the state of our trade with foreign nations. We believe there can be no mystery in its operations, and that ordinary minds can comprehend them. Until better evidence than Treasury documents and general experience are offered, the mind can come to no other conclusions than these:

That foreign nations are governed by their interest and policy in permitting the importation of our produce—excluding or taxing it.

That they will buy what they do want, and will not buy what they do not want.

That their laws form a system of general policy, from which they will neither be driven or persuaded by any means which our government has yet attempted. If, therefore, it is sound policy to look alone to a foreign market for our agricultural productions, (and one must be found by legislation) there is but one mode left—aim at their manufactures. Our market cannot be worse than it is; therefore we lose nothing—it may become better. It is not possible that the establishment of manufactures among us can deprive us of the European demand of what we now export, which is neither breadstuff or raw materials; they exclude these from choice, and take others from necessity. Thus far, then, the farmer is safe; but fears are entertained that the remaining exports may be excluded, if we impose additional duties on imported manufactures. Cotton being now our grand staple, it must be important to ascertain the effects on this.

It will be at once evident that, as to the quantity consumed, it is the same whether worked up at home or abroad; if the amount exported becomes lessened by the amount required to make as much cloth as will supply our market, the same amount is retained at home. The cotton planter then cannot lose by this effect. Will it affect the price of what is used in our manufactories? As the purchase must precede the manufacture, as there would be a competition in the first instance between two sets of purchasers and consumers, the foreign and domestic, as it must end in the ascendancy of the one or the other, the gainer must pay as much for the raw material as the loser. If he is overbid he could not procure the raw material while another will give a better price; he cannot continue his ascendancy if he refuses the terms

the other offers. As the raw material is indispensable, the raiser of it must profit in every possible event, as the market of the manufactured article can only be secured by the one who commands the material; his interest must of necessity be an effectual protection to the planter. Will the price of what is exported be diminished? If this country can produce a quantity sufficient for both the foreign and domestic demand and no more, then it must be wanted somewhere, and all that is wanted will be bought at a fair price: if less is produced than might be wanted, the price must rise—if more, it must fall. But on this subject, time is thrown away on conjecture; it is well known that this country can produce more cotton than will meet all demands; that the foreign market is completely gorged, and the prices rapidly declining. In the foreign market we have much competition: it is not extending with our means of supply, but contracting; the reasons for creating and extending a domestic one, would to the interest of the planter seem imperious. Will foreign nations change their policy, and impose additional burthens on the importation of our cotton? This affords room for conjecture. There are no arguments so difficult to answer as general ones, which cannot be located, which will not be specified, and, from their nature, have their origin not in fact, but fancy; their want of weight in every other analogous case will not prevent their being pressed in a new one; if those who urge them will agree, that their validity shall be tested by any known rule resulting from legislative or our commercial experience, there would be some means of ending the discussion. It is hoped that the light which practice has shed on the other subjects of legislation may not be lost on this. If facts tend to one conclusion, it must be taken to be the just one, unless reason absolutely rejects it.

If England wants our cotton, she will take it, and, in proportion to the extent of that want, will receive it on terms more or less favourable, taking it while it is her interest and no longer. So far as our supply of her market depends on the ordinary rules of trade, it has been considered, and has no bearing on the present view of the subject. The question is, whether her government will depart from interest to considerations of policy, and adopt a retaliatory measure. She has not done it in consequence of our exclusion of the coarse cottons from her East India colonies; she did not do it when we, in 1812, doubled the duties on all cotton and woollen goods—her two favorite manufactures. We cannot perceive why she should do it, if the proposed increase is made. Her corn laws do not relax or extend in rigour, according to the ebbs and flows in our tariff. The imposition of our war duties did not occasion the exclusion of our raw materials; their abolition did not give them a better market. The flourishing state of our manufactures in 1815 and 1816, did not produce any new measure of retaliation or policy; their depression since, has not brought about the repeal of any old one. Our free intercourse with her colonies did not affect her navigation acts; our non-intercourse now does not make them more rigid. The immense amount of her manufactures which we purchase, failing to produce any feeling of peculiar friendship beyond her interest, it is hard to believe, that the diminution of the amount will create a spirit of hostility adverse to her interest. Fully convinced that her future course of policy will be guided by the principles of the past, and seeing in that no indications of the course apprehended, we do not think there can be any reasonable fears. Unwilling to pursue this investigation into detail, we close it by remarking, that thus far the cotton planter has benefited by high duties on cotton; the East Indies has afforded him no market; the exclusion of the fabrics of that country has certainly opened a new market; and, as certainly, it has not injured the European, for that is glutted. If the exclusion should be extended to all India cottons and nankeens, this new market would be increased, and, probably, to a greater extent than the interest of any European nation would permit it to diminish theirs. As an agricultural objection, therefore, it seems entitled to less weight from the raiser of cot-

ton than any other, for though the East Indies afford a very bad and small market for other productions, they still take some, but of cotton they do not and never will take any.

(To be continued.)

For the American Farmer.

ON THE IMPORTANCE OF PLANTING FOREST TREES, THORNS, SHRUBS, &c. &c.

Taney-Town, Md.

MR. SKINNER,—You have taken a great deal of pains to recommend the most effectual methods of cultivating fruit trees; but neither you, nor any of your correspondents, seem to have paid much attention to what I consider of much more importance—I mean the cultivation of the most useful kinds of *forest trees, thorn quicks, and other shrubs*, suitable for making *permanent live fences*.—It does not require a man to be very sharp sighted (in travelling over the country) to discover that timber is becoming very scarce; that the fences are generally very bad, and that every one is cutting down, burning, and destroying, as unconcernedly as if their woods were inexhaustible. What will be the consequence of this destructive course? The answer I think is easily given, that they will very soon have no timber to cut.—On the other hand a man would require a good many pairs of spectacles fixed on his nose, to enable him to discover any one planting an acorn, hickory-nut, chestnut, or any other kind of a nut, or seed to produce a forest tree, a thorn quick, or shrub of any kind, to replenish his cleared land, or to supply the places of his old, rotten, indifferent worm fences. To this it may be replied, that the nursery business is not generally understood—that I believe to be the case, for I have frequently planted those kinds of seeds myself, and did not succeed, which must have been for want of proper knowledge how to prepare them, the proper season for planting, &c.—but surely there are persons who understand all those matters; and I think if they would commence the nursery business, and raise those kinds of plants generally, and extensively, there is no doubt but they would find purchasers, make money, and render an essential service to the community. The nursery business is very extensively and beneficially carried on in Scotland. It would seem surprising that even in the neighbourhood of the far-famed, public spirited city of Baltimore, no such establishment as that I have mentioned, has ever been attempted, so far as my knowledge goes, I wish you would undertake it, at your farm near the city—it would seem to be a useful and proper accompaniment to your present system for improving the breed of animals, and I doubt not would eventually be profitable.

AN AMERICAN FARMER.

17th April, 1821.

GOSHEN, (N. Y.) March 26.

Great Day's Work.—On the 19th inst. Jas. F. Green dressed out for James D. Clarke, of the town of Warwick, one hundred and one and a half pounds of flax. This is the greatest day's work at dressing flax we have ever heard of.

ON THE BENEFIT OF DEEP PLOUGHING.

From the Southern Patriot, of the 17th Feb. 1821.

Although the use of that most important of all the implements of agriculture, the Plough, continues to increase in our State, it is astonishing to find how few planters have surmounted all their *prejudices* upon this subject, so far, as to obtain every advantage from its aid, in the preparation for, and in the culture of their crops. Not many years since, in some of the lower parishes, this prejudice against the use of the plough was so great that its advocate was considered as a visionary theorist; and his opinions not worthy the attention of the practical farmer.

From the circumstance that in many of the upper and middle Districts, good crops of cotton and provisions were made, almost exclusively by the aid of the plough; its use is now much more general than was to be expected in so short a time, considering the great injury which was anticipated by those inimical to it.

Among the first advocates for the benefit to be derived to our crops from the plough in our lower country, and whose extensive and successful use of it greatly tended to remove the prejudices of his neighbors, was the late Gen. FISHBURN, who certainly was one of the best planters of Colleton District. In most instances however, the plough is used so superficially that instead of destroying the grass and promoting the growth of the crop, but little benefit is derived from it. In preparing lands in the fall for *cultivation*, we are satisfied with turning up the soil a few inches; whereas, were we in October or November, to plough up those fields which had been *enclosed* for only one year, from 10 to 12 inches deep, to receive the benefit from the air, frost and snow, during the winter, the next crop would amply repay us for this extra work.

The experienced author of *Arator* observes, "by shallow ploughing, the seeds of grass and weeds are kept near the surface *throughout* the year, locked up by frost, drought, or immersion; ready to sprout up on the occurrence of every genial season, when they appear in millions, and instantly require the plough, however recently used; by deep ploughing, if skillfully done, those seeds which abound near the surface, are deposited below a depth of earth, which they penetrate slowly and in small numbers, so that the repetition of ploughing is far less necessary."

In lands much exhausted by continued cropping, great benefit has been obtained by burying the upper soil, and bringing up the under surface, by what has been termed trench ploughing; and this mode of ploughing is recommended to be done from twelve to eighteen inches, though I presume that from ten to twelve inches deep, would be fully sufficient in most parts of our state.

The venerable Philadelphia farmer, Judge PETERS, observes, in 1817, "good ploughing is the foundation of all posterior operations. How roots of any plant can thrive, when they are impeded by a hard and impenetrable substratum, I am at a loss to conceive. But good ploughing, or good crops, never met my eye among those who talked about turning up clay

and barren earth, by deepening their furrows.—The country people around me thought me crazy, when I trench ploughed 40 or 50 acres of my farm.—The crops convinced them that insane persons hit on some good things. Some of my fields are yet the better for the operation, though my first essays were made at least 15 years ago." This decided approbation of deep ploughing, tested by the experience of nearly half a century, and from an American farmer, who was considered by the *father* of our country, many years ago, one of the best practical farmers in that part of Pennsylvania, must be more conclusive than the fears and surmises of those who oppose deep ploughing, from an impression of injuring the soil by turning up what is *usually* termed barren earth.

When cotton is cultivated in swamp lands after two or three years, it generally takes the *rust*; and the planter is compelled to throw them out of culture, or resort to a change of crop. As these lands are known to be very productive while fresh, there is every reason to anticipate a succession of good crops for a longer period, if every fall, as soon as the cotton was picked in, they were *deeply* ploughed, and left in that situation till March, and then well bedded for the next crop. In River Swamps, I would expect much benefit from frequent flowings, as each of these would deposit a rich and new soil to the ploughed fields. This method promises much benefit, whether the lands be continued in the cotton culture or intended for rice; since it is the practice occasionally to dig up with the hoe these swamps, for however rich, experience justifies the opinion that they also require a change of culture, or fresh soil to increase their production. I do not wish to be understood as recommending deep ploughing during the culture of the crops (except in low lands)—but much prefer the use of the *harrow* whenever practicable. It is admitted by most farmers, that nothing contributes so much to enable low and clay lands to resist the injurious effects of either great droughts or excessive rains, as deep and judicious ploughing while the crop is in a growing state.

A few who cultivate Winter Grain in continued rows, give one hoeing. But one good ploughing between the rows with a plough, which breaks up the alley well, and also throws up the earth to the roots of the plants, would be of more essential benefit than *three* such hoeings; and exclusive of this great advantage to the crop, it must be recollected that one plough will do as much work as four hands with the hoe. In the many and various kinds of work necessary in conducting the business of a farmer, the planters of our lower districts have not availed themselves of that aid from the plough which a little attention will soon satisfy them, is easily attainable, and attended with much less difficulty and greater advantages than they imagine. I shall only enumerate a few of them:—The planting of winter grain in the drill way; tracking out old fields, or new ground, previous to making the beds; making small ditches, or drains, through fields which require them.—These operations upon our farms are usually done with the hoe, when the plough performs them much better, and with a considerable saving of labour. I cannot here forbear calling the

attention of all planters, to the example of *work* done with one plough upon Captain MILES' plantation the last summer, (seven acres of cotton in one day), as a complete evidence of its great *usefulness*, in the preparation, and cultivation of our crops.

A COTTON PLANTER.

ON THE SUPERIORITY OF THE EGYPTIAN OVER THE COMMON OAT.—

Pendleton, S. Carolina, July 12, 1815.

Sir—Having heard some farmers declare their opinions in preference of the common oat, to the Egyptian oat, I take the liberty of stating to the Society, the result of my experience this year, as to these two kinds of oats.

About the 15th of March, I sowed ten acres, one half with Egyptian oats, and the other half with the common black oats. The same quantity of seed, and the same culture was used, and they were both sowed in the same field. The Egyptian oats always appeared more vigorous and thriving; on the 10th of June, the whole field was eared out, and shortly after I observed that the common oat was very much smutted, almost one ear in ten, while I could not find one single smutted ear in the Egyptian oats. I also observed that not more than two or three stems rose from one plant of the common oats, while five or six were common from the other; and the general appearance of the field warrants the opinion that double the quantity of the Egyptian oats will be reaped.

The common oats were cradled on the 3d of this month, since which, the continued rains have obliged me to let the large oats stand, and though they are over ripe, I do not observe that they lodge at all, though one of my neighbours informed me his common oats were down. The straw of the large oat is stronger and larger, and more valuable therefore for manure.

The Egyptian oat is a winter grain, and should be sown under furrow in September, when they will furnish a good winter pasture for sheep, without much injury, if they are taken off early. They tiller very much when sown early, and spread on the ground, which the common oats do not, and their not being liable to smut is a great advantage. I have sown them many years, and do not recollect ever to have seen them smutted. It is a good practice to let the oats intended for seed remain a few days after the others are cradled, as it is probable that unripe and damp seed, which will get mouldy, may be one cause of the smut in oats. It is highly advantageous to cut the rest of the crop some time before they are ripe, while the stalk is yet green; if well cured, their value as fodder is thereby doubled.

The same results as to these two kinds of oats, may not arise, if sown by different farmers, in different fields, and in different years; a better or a worse season or soil, may cause an improper conclusion to be drawn. The fair way is to sow them at the same time, in the same field, and in the same way. The perfect equality of circumstances under which they were sown in my field, leaves no doubt in my mind, of the great superiority of the Egyptian oat.

I have only to add that the soil of the field is

tolerably good upland, some clayed loam, with a substratum of stiff red clay.

Although the subject of this communication may not be thought very important, yet I think if farmers generally would favour the Society with their experiments on every agricultural subject, a mass of information would be collected, from which might be selected, a most useful and practical system of husbandry.

I am sir, very respectfully,

Your obedient servant,

THOMAS PINKNEY, JR.

J. T. LEWIS, Esq. Corresponding Secretary,
of the Pendleton Farmers Society.

ON RUST OR BLIGHT IN WHEAT.

Pendleton, 7th July, 1815.

SIR—In consequence of the serious damages that wheat crops have for several years past sustained from rust, and of the heavy loss necessarily experienced by the farmer, I have been induced to turn my attention to that subject, and I now communicate to the society a few observations, not so much however with the hope of offering any thing new or interesting, as of encouraging gentlemen to similar attempts.

Of all the diseases to which wheat is subject, I know of no one so rapid in its progress or so fatal in its effects as rust. The moment it seizes on a plant, all vegetation ceases; in a few days its leaves and stalk become dry and useless, and the grain eventually turns out to be light and worthless. Farmers, and indeed men of science, appear to be but little acquainted with the cause or nature of this disease, and still less with the remedy proper for it. The variety of opinions that have been offered on the subject, (some plausible indeed, but non-perfectly satisfactory) is a proof of this fact. Dr. Darwin supposes rust to be a fungus, similar to mildew, which resembles certain kinds of liver-wort, and grows beneath the leaves of plants already diseased, and conjectures that greater light and ventilation may prevent or destroy it. Whether this hypothesis has ever found any advocates among men of science, I have never been able to learn; but I believe it to be unsupported by the experience of any respectable farmer, either in Europe or this country. My own is directly opposed to it. I have sowed wheat on lands somewhat worn, but still in good heart, and also on the very first quality high lands, and have always noticed these parts where it was thin, and of course completely exposed to the operation of but light and ventilation, to be greatly injured, whilst others differently situated, have escaped entirely, or been little affected. The same or very similar results, have been remarked by others for several years past, and as far as I know, without any material variation. M. Degea conjectures mildew to be the cause of rust. He describes mildew as a disease of plants, consisting of a thick, creamy, sweetish juice, that is supposed to exhale from or descend on the leaves and blossoms of plants. This juice is said to be of a sharp corrosive nature, and by its acrimony, to prevent the circulation of sap. Others again ascribe it to honey dew, which in its nature and effects very like mildew; and

a few, I believe, to the action of cold, which bursts the sap vessels, or to innumerable insects. The last of these opinions seems now, however, to be generally abandoned; for the most accurate and patient examination, by means of microscopical glasses, does not lend it even the colour of support. Without considering further the varying, and in many instances, contradictory opinions of writers on this subject, I proceed to mention the issue of several experiments made by me with the view of finding some preventive for this disease; and also of others, which, though not made by me, nevertheless came under my observation, and thence draw a few conclusions.

In November, 1812, I sowed nine acres of stiff creek low grounds in wheat; upwards of a bushel was put to the acre, and ploughed in with two horses. When it had only its two first leaves, the cold weather set in, and continued with undiminished severity for several weeks. During that time, we had a fall of snow; it was not deep enough to do good, indeed it rather did harm. One or two days after the snow disappeared, I examined my wheat, I found it, as to growth, but little improved; its appearance red, and otherwise unhealthy. Through the winter it remained nearly stationary; as the spring advanced, however, it pushed forward rapidly, and promised well. About the time rust generally makes its appearance, I heard of some fields in my neighbourhood being overrun with it. This induced me to examine my crop a second time, when I found it to be injured only where it was thin, or backward, or where it was lightly manured with ashes. But these spots were also backward. I harvested at the usual time. My wheat, under all these disadvantages, was fair and usually plump. It yielded considerably more to the acre than my neighbours; and weighed sixty-six pounds to the bushel. The spring was late; the nights and days alternately hot and cold.

The succeeding fall I had a very fine piece of high land sowed down in wheat; about the same quantity was put to the acre as on the preceding year. It was ploughed in with a single horse, but well, the land being in capital tilth. In the fore part of the spring, which was open, my wheat became luxuriant. On the 10th and 17th of April, the forward shoots were killed in the hose by frost. The under shoots then came forward. The whole field was almost totally destroyed by rust. Another held at some distance from the creek, and which suffered not little from frost, escaped almost without damage. These fields were sowed about the same time and by the same hand; the quantity of seed to the acre the same. The wheat on the creek was most backward.

Last year I sowed a twelve acre field in wheat, allowing nine bushels to the whole, or three pecks to the acre. It was ploughed in with two horses. Through the winter and spring its growth was inconsiderable. It was generally much injured by rust. On examination I found that those spots which were shaded, or thin, or where a quantity of ashes had been left, (some low heaps having been burnt in the field) were the most damaged. The spring was backward than the two preceding. Frost occurred as late as the 22d of May.

On the adjoining farm, six bushels of wheat were put on between three and four acres of land, some of which had been upwards of twenty years under cultivation. It was sowed rather later than mine, but came up about the same time. The only part affected was rather thin. The grain is good, and the crop promises to be abundant.

To these statements I might add many others; but I deem them sufficient for my purpose. I cannot, however, deny myself the satisfaction of relating a fact, which, though it has no material bearing on the subject of rust, yet shows that the practice of thin sowing is discountenanced by some able farmers, on the score of profit. In Switzerland, one of the best agriculturists usually sowed three bushels of wheat to the acre, first however, dressing that quantity of ground with light loads of manure. The produce, one year with another, was sixty bushels to the acre, which left, after deducting the expenses of seed, rent, tithes, labor, &c. a clear gain of twelve bushels and thirty bundles of straw per acre. I am particular in mentioning straw, because it is every where, but in this country, considered to be of the very first importance. It is the source whence the greatest quantity of manure is derived, and without manure there can be no good farming.

From the above statements I deduce the following inferences:

1st. That rust, whatever may be its nature, arises chiefly from the alternate action of heat and cold, on plants that are thin; or from whatever cause, unreasonably backward.

2d. That deep ploughing, which increases the pasture or food of plants, and thick sowing, which preserves a more equal temperature, are the best preventives of this disease.

I am sir, your obedient servant,

JOHN NORTIL.

J. T. LEWIS, Esq. Corres. Sec'y. of the Pendleton Farmer's Society.

(To be continued.)

For the American Farmer.

Fredericksburg, (Va.) April 18th, 1821.

MR. SKINNER,—In Niles' Register, a few years ago, an account was published of a remarkable kind of rye, which was stated to be then growing on the farm of E. S. Thomas, Esq. of Baltimore county. The seed originally came from near the head of the Mediterranean sea, to a gentleman of New England. The peculiar characteristics of this grain, were stated to be, in the superior quantity and quality of the crop, and the grain represented to be nearly half an inch long, and of a bright yellow colour, &c. The same account stated, that it was sown on the 25th of March, and promised to become an invaluable resource against the effects of our winter frosts, &c.

Are you, or any of our farming brethren acquainted with this rye? Is it still grown in Maryland, and with what success? What time is it usually sown, and is it believed to be well suited to the climate of Maryland?—if so, it will answer well in Virginia. Answers to these inquiries, will be useful to the farming interests.

A FARMER.

* And will be cheerfully received and published by the Editor of the American Farmer.

MANGEL-WURTZEL.

Experiment with Mangel-Wurtzel, published by the British Board of Agriculture, and made by Governor Alexander Beatson, at St. Helena, which proves that it will thrive, even in tropical latitudes, and justifies the belief that it may be cultivated with great advantage in the Southern States of our Union.

Edit.

Gov. Beatson states in vol. VII. p. 230, that his attention was accidentally directed to the culture of *Mangel-Wurtzel*, which is the white or sugar-beet, lately so celebrated in Prussia, by observing the rapid vegetation of its leaves, and the frequent cuttings obtained from some plants that were set out on the 6th of February, from a seed-bed sown on the 3d of January, 1809; but it was not until the 21st of June following, that I resolved to try the effects of manures; and, accordingly, a portion of the

transplanted Mangel-Wurzel, being 130 plants, was left without manure—81 plants had a top-dressing of hog's dung and ashes, at the rate of about 30 loads, or 360 bushels per acre; and the remaining portion, containing 48 plants, was treated in the same manner with Guano, or sea-fowl dung, in the proportion of only 35 bushels per acre.

If I had predetermined to report on these experiments, I should have made them in a more regular form; that is, I should have allowed an equal number of plants to each; but under the circumstances which have led to them, the result shall be given, exactly as they were recorded at the periods of cutting the leaves, and when the experiments were completed.

The three first cuttings, not having at the time attracted my notice, were not weighed; I have therefore taken them in the following table, at the proportions of the fourth, fifth, and sixth cuttings, which is a fair presumption, as they are in general most productive in the early stages of their growth.

Table exhibiting the produce in leaves of 259 plants of *Mangel-Wurzel*, at Plantation House Garden, from seed sown on the 3d January, transplanted on the 6th February, and manured on the 21st June, 1809.

Dates of Cuttings.	No Manure.		Hog's Dung.		Guano, or sea fowl dung.	
	130 Plants	81 Plants.	48 Plants			
1809.	lib. oz.	lib. oz.	lib. oz.			
February 24	37 0	107 0	106 0	1st cutting	Estimated, Weighed	
April 8	45 0	123 0	72 0	2d do		
June 21	62 0	117 0	58 0	3d do		
August 29	36 8	107 4	106 6	4th do		
October 22	45 0	123 0	72 0	5th do		
December 22	62 0	117 8	58 8	6th do		
1810.						
March 23	58 0	62 0	37 3	7th do		
May 23	81 0	126 0	114 0	8th do		
July 24	29 0	72 0	37 0	9th do		
September 22	36 0	79 0	65 0	10th do		
November 22	36 0	59 0	32 0	11th do		
	507 8	1093 12	758 1	2,358 TOTALS.		
	—167th	—269th	—454th	Proportions of an Acre.		
	84,52	293,949	344,160	Acreable produce in lbs.		
	—38	—131	—153	Do in tons.		

The plants were placed in rows, two feet asunder, in a blackish stiff soil, and at the distance of one foot in the rows. An acre planted in this manner would contain 21780 plants; 48 plants are therefore very nearly (as entered in the table) the 454th part of an acre—because $48 \times 454 = 21792$. In the same manner the other proportions are deduced.

Observing the produce in leaves had diminished at the last three cuttings, and that they had also been much interested with caterpillars since they began to decline, I had the roots taken up on the 17th January, 1811. From the 22d of November to that time, the growth of the leaves was inconsiderable; they were, how-

ever, cut off close to the crowns: and the roots, after being pruned of the small fibres, weighed 1196 pounds.

As the roots of the experiment lots were not separately weighed, I deduce their respective produce in the following manner:

As the total weight of the leaves,
Is to the total weight of the roots;
So is the weight of the leaves from each experiment,

To its proportion of the roots. Then,

lib. lib. lib.
2358 : 1196 :: 507 : 257—no manure

2358 : 1196 :: 1093 : 554 $\frac{1}{2}$ hog's dung & ashes

2358 : 1196 :: 758 : 384 $\frac{1}{2}$ Guano or sea-fowl dung.

These results being reduced to acreable produce, in the same manner as the leaves in the preceding table, will be as follows:

No manure,—257 lib. $\times 167$ th = 42919 lbs. or 19 $\frac{1}{2}$ tons of roots per acre.

Hog's dung and ashes,—554 $\frac{1}{2}$ lib. $\times 269$ th = 149160 lbs. or 66 $\frac{1}{2}$ tons of roots per acre.

Guano, or sea-fowl dung—384 $\frac{1}{2}$ lib. $\times 454$ th = 174563 lbs or 77 $\frac{1}{2}$ tons of roots per acre.

Now the acreable produce in leaves and roots from each experiment will stand thus:

	Leaves.	Roots.	Total acreable produce of the
	Acreable Produce.	Acreable Produce. roots.	Leaves and roots.
No manure	58 tons—	19 $\frac{1}{2}$ tons—	57 $\frac{1}{2}$ tons
Hogs dung and ashes	131 do.—	66 $\frac{1}{2}$ do.—	197 $\frac{1}{2}$ tons
Guano, or sea-fowl dung	153 $\frac{1}{2}$ do.—	77 $\frac{1}{2}$ do.—	231 tons.

These results are manifest proofs of the great benefit of manuring the lands. They likewise show the surprising effect of the Guano, from which it may be inferred that 35 bushels of this manure are superior to 30 loads of hogs dung and ashes; or, in other words, that one bushel of the former is, in effect, superior to twelve bushels of the latter.

When the roots were taken up, on the 17th of January last, very few of them were in a decayed state; some had rotted in the centre; but, in general, they were sound and good, notwithstanding they had remained above two years in the soil; that is, from the period of sowing the seed. The four largest roots weighed as follows:

No. 1	28 pounds
No. 2	11 ditto
No. 3	19 ditto
No. 4	20

(To be continued.)

Experiments made to ascertain the value of the **SACCHARINE PRINCIPLE IN FOOD**, Published by the British Board of Agriculture.

EXTRACTS—VOL. VII. PAGE 327.

Mr. Charles Ellis states that, "He has been trying several experiments on the efficacy of sugar in feeding animals of various descriptions. Some of those are now in train, and of others, which are completed, all the necessary details have not yet been transmitted to me. But in the mean time, I take the liberty of stating such general results as I can supply from my recollection. I have fattened about a dozen pigs, four cows, and two calves. With respect to pigs, I have ascertained, that three pounds and a half of sugar are rather more than equal to a peck of barley-meal (or about 10 lbs.); that is to say, that a pig would fatter quicker upon a mixture of barley-meal and sugar in these proportions, than on double the quantity of barley-meal. The last pig which I fattened was weighed at the time when it was put up, and when it was killed, and was found to have gained at the rate of about 2 $\frac{1}{2}$ lbs. per day. The sugar which I employed was simply dissolved, and mixed with the meal: I have been informed that when given

in a state of fermentation, it is still more efficacious. With respect to calves, I have fattened only two; they were fed solely on new milk and sugar, of which latter they consumed rather less than half a pound a day. One of them was sold, at five weeks old, for \$4. 10s, the other for \$5. I do not recollect at what age. These two experiments were remarkably successful. Having varied the experiment with some others, and attempted to substitute skim-milk for new milk, I found that change of food to disagree with them, and that they lost instead of gaining flesh. I have now another in the act of fattening entirely upon new milk and sugar, and it is very promising. Of the four cows which I have fattened, two were so far advanced with calf, that I was forced to sell them to the butcher before they were completely finished, though they were very good meat. I have not the details of their weight, but I believe that the result of the experiment was, upon the whole, not less satisfactory than that of the experiment on the two which were exhibited at Lord Somerville's show, one of which obtained the premium."

And, Dr. Cartwright observes, vol. VI. page 424, upon the details of an experiment with sugar, given along with other food by him to several lots or classes of sheep, that, "It will be remarked that between the twelfth of November, (at which time we are to suppose the weights of each class corresponded) and the third of December, the space of twenty-one days, the third class from whom the sugar had been withdrawn had fallen short of the second class, which had uniformly been supplied with it, eighteen pounds."

"I am justified in attributing this gain of flesh solely to the sugar, because when the sugar was again given to the class from which it had been withdrawn, that class actually took the lead."

"These eighteen pounds of flesh, which the sugar-fed sheep gained over those which had none, were purchased, it will be observed, at the expense of twenty-one pounds of sugar, which at four-pence per pound (for at such price I presume it may be afforded duty free) would amount to seven shillings, not half the value of the 18lb. of flesh." But the profit in this case is not confined merely to the balance between the sugar expended and the flesh gained; the saving of time (the most important of all savings in this, as in most other cases, if rightly understood) and the consequent saving of other food, besides the increased value of the manure, are all to be taken into the calculation.

"It is presumed that the following conclusions, drawn from the facts which I have now the honour to lay before the Board, may be justified."

"First, That sugar may be given with great advantage to sheep, if not confined; especially

if they have access to green food, however little that green food may be in quantity.

"Secondly, That sugar may be given to them with every prospect of a beneficial effect, in the quantity of four ounces per day to each sheep of middling size."

"Thirdly, That sugar, supposing it to be purchased at four-pence per pound (which it might be if duty free), would, at the rate of four ounces per day, be paid for in a return of flesh, exclusive of the advantage of expeditious feeding, and the benefit to be derived from the manure."

"Fourthly, That six ounces per day to each sheep of middling size, exceeds the maximum that can be given with the best advantage."

"Fifthly, That the advantage of stall-feeding sheep altogether upon sugar and dry food, of whatever nature that food may be, is extremely problematical."

"Thus have I candidly laid before the Board the result of a long series of experiments which it will be perceived, have been prosecuted with unremitting attention, and, in consequence of my being particularly circumstanced, at no inconsiderable expense and trouble for the space of four months and upwards."

FOR THE AMERICAN FARMER.

Remarks on the mode of gathering and feeding Crops of Indian Corn.

SIR—I have seen and read with some attention and pleasure, a communication in your valuable paper, signed "Richard B. Buckner," upon the culture of Indian Corn, and the manner least expensive and most expeditious and safe in securing it. Although not a professed farmer, I have been engaged in a small way for some years past, in the cultivation of Indian Corn in the midst of farmers, who are, I believe, excelled by none in point of economy, judgment, industry and experience, especially in that crop, which has enabled me to form a just conception of their manner of farming; and believing it as I do, liable to fewer objections, and better calculated than any I have ever seen to effect their objects, (the security of the crop when made, and the saving of labor)—I have thought it right to give it in a plain unaffected style, not intending to censure the plans communicated by Mr. Buckner, for I much approve his general remarks in cultivating the crop; but with us, they would not entirely suit, owing perhaps to difference in soil and climate. On subjects of this nature, I listen to and read with peculiar pleasure, the opinions or the experience of others, and I hope Mr. Buckner will not suppose I intend to oppose his suggestions, for if the ideas I advance, are calculated to promote the ends he has in view, I shall feel abundantly gratified, and my only object will have been accomplished.

When the corn is fit to cut, which is ascertained by the husk on the ear, and the blades changing to a ripening hue, we commence on a field; and, here let me premise that, the general plan is to put 10 hills square in a stack—*never more in good corn*; sometimes 12 hills square are thought enough, where the crop is very luxuriant, or not sufficiently ripe, which sometimes is the case with large and extensive farmers, who must, in order to secure the whole

in good time, commence early. The four centre hills are left to stack around, and these are tied together transversely; this done the cutter commences on the 7th and 8th rows, with a knife of Mr. Buckner's description, cuts the stalks near the ground and lays them in heaps of four or six hills; he is followed immediately by a sufficient force, who carry to the place intended to stack the corn, where it is set up erect. But if the preceding night shall have been wet, or a heavy dew shall have fallen; though the cutters proceed, the carriers are not sent to the field until the fodder is dry and in a condition to stack, which if the day is fair, it will be in a few hours. If the farmer thinks the crop not sufficiently mature, or if the weather is damp and portends rain, he cuts and puts up but eight rows, and in a few days, when that which has been cut is dried and wilted, or the weather clears, he adds the remainder. When his crop is thus cut and stacked, he takes a favourable day to tie it with a hand of fodder, to prevent its being blown down, as rain would seldom effect it if the stack is made well. Four cutters, four carriers and a boy to tie the hills, are able to secure daily twelve acres of corn, on our best bottoms, which yield from 40 to 60 bushels per acre. This plan has been pursued here for forty years, and I am told, has always succeeded in securing the fodder well, and the corn itself as sound as if housed, and keeps it safer from the depredations of rats and mice than any other, only excepting cribs of a description calculated to prevent their ingress.—That part of the crop designed for sale, or the consumption of the family, as suits the convenience of the farmer is husked, and the fodder stacked on the ground where it originally stood, sometimes blending two and three stacks to make it save better, less liable to be blown down, and easier to come at in deep snows in winter. The residue of the crop is fed to beef cattle from the stack. Corn saved after this manner will keep without material injury till the ensuing summer, and the plan pursued here, has this advantage of Mr. Buckner's: you secure your crop as you go. The objection which I have to Mr. Buckner's plan is, that, by suffering the corn and fodder when cut, to remain two or three days on the ground, it may be injured and entirely lost by rains; a slight shower will not only materially injure it, but render it out of season to set up for some time. *The dews alone*, will tend very much to injure it. Exhalations are continually going on in the day and in the night these are deposited in the form of dews, so that the moisture which passes up thro' the heaps, is afterwards deposited upon them, thus subjecting the corn and fodder lying upon the ground to alternate changes, from dry to wet, every one of which deteriorates the fodder, and lessens its saccharine properties.—The sun also has an injurious effect on the fodder. But there is no risk in following the plan pursued by my neighbours; experience has proven its efficacy: the sooner you stack the corn after it has been cut the better, observing the precautions before mentioned, as thereby the air has a greater opportunity of drawing through excluded from the greater part—the evening and ripening it, while the rays of the sun, are

* 30.

† 22 22 cents.

‡ 8 cents per lb.

§ The carcasses of these sheep were sold for 7s. per stone, of 14lb. or 10d. per lb.—20 cents per lb.

de is 1. 73, nor will heavy rain injure it. Whether this plan will suit other places or not, as to the size of the stack, or the number of hills in each, I cannot say. Corn is here planted in hills from 3½ to 4 feet asunder, and from 3 to 5 stacks are left after thinning, consequently 16 hills square, make a pretty large stack; one capable of withstanding a heavy gale; but in other places when a fewer number of stalks are suffered to remain in the hill, I would suppose, to make the stacks staunch and firm, twenty or twenty-four hills square should be thrown together, the only difference would be carrying the corn and fodder further at the time of cutting and stacking, which would be very considerable.

I have submitted the foregoing ideas in furtherance of Mr. Buckner's plan, which to the farmer I think important, and if you consider them worth insertion, you are at liberty to use them; and if advisable may attach my name, making any necessary corrections, as I have not had time to correct the copy.

SAMUEL McMECHEN.

Moorefield April 18, 1821.

Extract of a letter to the Editor, dated, NORTHERMBERLAND, C. H. 20th April, 1821.

SIR,
am solicited by one of your constant readers, to forward the following notice, and to request that you will give it a place in the American Farmer.
Respectfully, &c.

R. K.

MARRIED,

On Monday, the 16th instant, by the Rev. Benedict Burgess, Nathaniel G. Hopkins, Esq. to the amiable and much admired Miss Nancy P. Daneron, all of Northumberland County, Virginia.

In the Farmer, of March 30th, you have inserted the note of X. Y. Z. on the subject of "the best substitute for clover"—whether that will succeed in attracting the attention of any of your subscribers, I know not, but as I know well the importance of the subject, you will oblige me by correcting in the next paper, two typographical errors, which entirely change the meaning of the sentences. In the 13th line from the bottom, for "is it not probable that many native grasses, not weeds may do still better. read, "may weeds, &c. &c." In the 3d line from the bottom, for "M. gothy-bay beans, which no body has so highly eulogised. &c." read, "which Mr. Burdly has so highly eulogised," &c.

THE FARMER.

BALTIMORE, FRIDAY, MAY 4, 1821.

PRICES CURRENT.

Flour, from the wagons, \$3 87½—Whiskey, from do 23 to 24 cts per gal.—Hay, per ton 16 to \$17—Straw, 7 to \$8—Wheat, White 80 to 85 cts—Red, do 75 78—Corn, 32 to 35—Rye, 35 to 37—Oats, wharf, 20 to 25 cts—Barley, 25 to 30 per bushel—Cod fish, per quintal, wholesale \$3, retail ditto \$4—New-England Beans per bushel, \$1 12½—ditto Peas, 75 cts—Plaster in stone \$6 per ton—do ground, \$1 35 per barrel—35 cts per bushel—\$8 per ton—New Orleans Sugar, 75 to 100—Muscovado, do. \$7 50 to 9 25—American White Lead, \$12 50—Ground, do. \$13 to 14—Lined Oil, 75 cts—Fathers, 45 to 45 cts—Potatoes, N. Eng. pr. bushel, 75 cts—Shad,

new, \$6—Herrings, \$2 73, declining—Fine Salt, wholesale, 42 to 45—Ground Allum do. 46 to 48—St. Ues, 50—Cads, 18 to 40—retail do.—Turks' Island, 75—Cads ditto, 60—Live Cattle, 5 to \$5 50—Beef, prime, pieces, 8 to 10 cts.—corn Beef, 7 cts.—Hutton, 8 to 10 cts—Hams, 10 to 12 cts—Middlings, 8 to 10 cts—Butter, 20 to 25 cts—Eggs, 12½ cts—Cheese, 10 to 15 cts pr lb.—Tar, \$1 62½—Soft Turpentine, \$2—Pitch, \$2½—Rosin, common 1½—bright do. \$3 per barrel—Varnish, 25 cts—Spirits turpentine, 33 cts per gal.—Cotton, good Upland, 12 to 14 cts. very dull—Rice, 3 a 3½ cts.—ship and flooring Planks, \$25 to 27—Shingles, best 6½ a \$7 com, \$3 a 4½ p. M.—Oak, wood, \$4 50—Hickory, \$5 per cord—Clover, seed \$6—Am. Orchard grass do. \$4—Eng. do. do. or Cockfoot, \$4—Herd, do \$3—Sanfoin, per bushel \$8—Millet, do. \$2—Lucern, 62 cts per lb—Sweet Scented Vernal grass, 150 cts—Trefail, 50 cts per pound—Ruta Baga, 50 cts—Mangle Wurtzel, 175 cts, pound—Cabbage seed, 2 to \$6 per pound—Cauliflower, 75 to 100 cts. per oz.—spring Turneps, \$3 per bushel—Peas, 25 to 37½ cts per quart—short orange Carrot, 12½ cts.—Parship, 12½ cts—Lettuce, 25 cts—Radish, 12½ to 20 cts—Beet 20 cts—Brocoli, 31 to 100 cts—Cucumber, 37 to 50 cts per oz.—Turnip seed, 50 to 125 cts per lb.—Chicory, 75 cts per pound—Rape, 12½ cts do—large Amsterdam Cabbage for cattle, 25 cts per oz—Irish Furz or Wins, \$2 per pound—Bish and Pole Beans, 6½ to 25 cts per quart—New York premium Ploughs of sizes from 7 to \$16—Box Churns, 8 to \$9—Drill Machines, 10 to \$11—Bennet's broad cast Machine for sowing Clover, Turnip, and Grass seeds, \$18—Expanding Cultivators, \$15—Post Augurs, 5 to \$9—Flexible Tubes, to relieve cattle when hooven or choaked, with gags, the pair \$5—Corn Shellers, 20 to \$21—Turnip Scoops, 50 cts each—large 2 horse Connecticut Ploughs, iron mould boards, \$11—do. do. wood, 10\$—small Ploughs, do \$7 50.
No sales of Tobacco since last report.

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Extract from the editor's preface.

"Conformably to his original plan, the editor has spared no pains, trouble, or expense to render this Economical Dictionary as complete as the present advancement of Agriculture, Gardening, of the familiar Arts and Manufactures, as well as the state of Medical science, would respectively admit. Many subjects, indeed, might have been extended to greater length, and others considerably abridged, had these volumes been peculiarly calculated for the use of either town or country readers. Such, however, was not his design, as the work now submitted to the public, includes all most every object, more or less connected with Rural, Domestic and Animal Economy. Hence the inquisitive reader will find numerous experiments related, many hundreds of which have not hitherto been published in the English language.

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A M E R I C A N F A R M E R .

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua a bona norint
Agricolae." VIRG.

VOL. III.

BALTIMORE, FRIDAY, MAY 11, 1821.

NUM. 7.

AGRICULTURE.

REPORT

Of the Committee on Manufactures, on the various memorials praying for, and remonstrating against, an increase of the duties on imports, January 1821.

(Concluded from No. VI. page 43.)

[We extract so much as particularly relates to the interests of agriculture.—*Ed.*]
The Committee Report:

If it is impracticable to legislate a nation into wealth, and impolitic to attempt it, it does not follow that it may not be preserved from poverty; if neither object is attainable, it is not perceived that government can tend neither to preserve or increase the fruits of their labor, we are at a loss to know the legitimate objects of legislation. To what object ought all national machinery to tend, but the common defence and general welfare of the people? If this does not consist in increasing their resources, as well as preventing their extinction, we must pursue this subject no further till better informed.

The encouragement of manufactures is called coercion; a forcing from one occupation to another. Like the other objections, the best answer seems to this, is its want of application in fact. During the late war manufactures flourished: farmers were not then forced from their occupations. The planter of the outh was not prevented from raising cotton; he had no foreign market, but he had a domestic one.—But he felt the practical difference between a market at home and one abroad; the land transportation from the place of production to the place of manufacture, and back again, taught him how much of the value of the raw material, to him, was diminished by the intermediate expenses. Had their manufactories been at home, had the same persons who then completed them at the north, commenced and completed them to the south, it would have been called no forcing of occupation, no tax on agriculture. One pound of cotton will now pay for one yard of cotton cloth; when it shall appear, that, before the establishment of our cotton manufactories, or since their decline, a pound of cotton has produced more to the raiser, it will be time to answer any additional objections of this kind. Generally speaking, as there were no manufactories in the southern states, their existence in the northern and middle could not have forced them from their occupations, unless the current of emigration from the south to the north should have been the fact on which this objection has been raised. In Kentucky there were manufactories to a great extent; the farmers in their neighborhood, and those who represent them, can say whether they are now more prosperous, whether they have now a greater freedom in the selection of their pursuits, or profit in following them. If the same question was put to the farmers in the northern and middle states, if any member of this House, who represents them, was asked if he could point out an instance of even an individual farmer who was against his will forced to abandon his soil, and go to a manufactory for employment, the force of this objection can be tested by the application of theory to practice. It may be asserted, with truth, that wherever the principle has been fully tried, it has been found that the interest of the farmer and manufacturer has been completely identified—one rises and falls with the other. This is verified not only by personal observation, but attested in the most impressive manner by the petitions presented to the present Congress. Last year thousands of farmers asked you for protection to manufactures; they were from states in

all of which their practical effects had been seen and felt for years.—With all the efforts used to excite opposition and alarm during the present year, it is a remarkable fact, that, in the whole scope of country from Maryland to New Hampshire, a solitary petition, memorial, or remonstrance, of farmers, has not been offered in opposition to the proposed tariff. Those which have been presented are from parts of the country where manufactures never were in operation, and where no correct opinion could be formed of their effects. So far then as respects farmers, this is the result—when their opinion has been founded in fact, it is favourable to manufactures; when from theory only it is unfavourable. There are memorials, it is true, from another class, who, in the name, and for the protection of the farmers, decry the ruinous effects of this measure on agriculture. It is not yet known that farmers have not discernment to know, and spirit to complain, of their grievances; they have shown it, and asked for a measure like this—when as numerous petitions from them (not from others in their name) shall ask for its rejection, then petitions being balanced, the question may be settled by general principles of policy.

The war duties forced no man from his employment, but gave him security in its pursuit, opened new sources, gave the means of selecting the most profitable, most suited to inclination, habit, and capacity. The war built up establishments which were rapidly developing the resources, and employing all the industry of the nation. The peace, and the repeal of the war duties, prostrated those establishments, and forced the mechanic, the artisan, from an occupation to which he was led by education, habit, and interest, and in which he felt his best security to be the policy of the government coinciding with the general interest of the people. If complaints of forcing from profitable to ruinous occupations are just from any one class, they must come from those who are practically and virtually forced by the policy of the government to abandon their trade and occupation. Give a mechanic appropriate employment, he acquires wealth for himself, and adds to the interest of others; drive him to the soil for support, he makes a bad farmer—he may raise enough to feed, but cannot clothe his family. If any of us have seen the instances, in actual life, of mechanics forced, from the want of employment, to turn farmers, and been enabled to compare their relative situations in both occupations, we can duly estimate the consequences.

If farmers can be considered as a distinct class of society, and their interest separated from the rest of the nation, it is very certain that it cannot be promoted by increasing the number of those who engage in its pursuits; it increases the competition and diminishes the profits of the productions. To the nation it is not so important that their pursuits should be productive of amount, as value, extensive as profitable. The great object is to afford a market, and give a value to what is raised. We abound in provisions and raw materials; more is now produced than can be consumed or sold; to increase the quantity is only a loss to the raiser; it can give no new value to what he now has, or what he may acquire; it can give him no profit. To the government it can give no revenue, for it does not increase his means of consuming articles of foreign production, and from no other source of taxation does it leave a surplus that can be spared from the wants of the farmer to the calls of the Treasury. Who, then, can be interested in the mere increase of agricultural products, which want market abroad and value at home? The definition, and application to agriculture, of the terms coercion, restriction and forcing of occupations, is now practically understood

by all those who will look to the state of the country. Where there is no prohibition, duty, or bounty, on imports or exports, shipping or tonnage—occupations, trade, and commerce are free;—whether those clogs are imposed by our own or a foreign government, is immaterial; so far as they extend, they prevent the people from the perfect freedom of choice of occupation, employment, and production, and that freedom can only be restored by the removal of these clogs. Whether the character of the proposed bill has been fairly judged of will become apparent. The clogs on our agricultural products are not on their export; there is perfect freedom in raising and shipping them, but the corn laws of England, France and Spain, prevent their consumption; when they reach their shores free trade ends. The worst effect of domestic coercion would be, to prevent their production or exportation; foreign coercion becomes as effectual when it accomplishes the same object by rendering production and exportation unavailing; the privilege of raising is an useless one, when there is a prohibition to sell or to use. It cannot be less grating to national feeling that it is the act of a foreign government. The duty of forty cents a pound on our dressed flax, is no less a prohibition to our farmer to raise any more than suffices for his wants, than if a positive law forbade it; the bounty on linen is as effectual a check on the making of it here as a domestic excise. The operation of a foreign system which excludes our productions and forces theirs on us, is the practical restraint on agriculture, the essence of a system of restriction under which the whole country now labors; which, when imposed by a foreign government seems to be more admired than dreaded by those, who, speaking in the name, assume the protection of farmers. Every farm in this nation will produce flax, yet we do not export a pound; foreign governments refuse it as a market; we do not make our own linen; they give a bounty on theirs to prevent us from making it. They thus, by legislation, force us from the market, acquire its command; the farmer is prevented from raising flax and forced to another product; he tries wool, hemp, breadstuffs—they are also excluded; he is not left free to sell to the people of England, or they to buy, what they want. He is virtually bound to raise only what their government will permit him to dispose of; his freedom of occupation is gone; it is controlled by a foreign power; directed by their policy, he is driven to the pursuit which best meets their views, and most promotes the interests of its subjects. The coercion rests not here; it not only forces ours out, but thrusts their productions in, and the domestic market is thus taken from the farmer. When national policy and individual association combine to prevent our manufacturers from affording the home market to the farmer, and succeed in the object, coercion becomes complete. How far the middle and western states are now from suffering under the full scope of foreign restrictive policy, the condition of the farmers will best testify. If the north is saved, it is by manufactures; if the south is free yet, it is because the great manufacturing nations find it their interest and not against their policy to permit the consumption of their staples. It would perhaps, not be an useless inquiry to ask whether their demand and price is increasing? The state of the country fully justifies this remark—foreign policy has forced from employment our agriculture, manufactures, and commerce; each interest is low, each complaining; with the infinite capacity to produce, fabricate, and distribute, the power has become useless, without the means of using it; our industry has become paralyzed by the employment of foreign, which has been forced on us by a persevering unyielding course of legislation by other nations. Now,

when our citizens ask of their own representatives to counteract foreign laws, systems, and combinations; and, if not, to retaliate, at least to compel them to restore to us a freedom they have taken away or destroyed—the freedom of production and exchange: that, if the monopoly of our market is to be given by legislation, it shall be such as flows from a conviction of its tendency to promote our interest, and enacted by our representatives, not such as it may please a foreign legislator or monarch to prescribe to us: how far the increased duties proposed will tend to more or less balance the foreign coercion which now bears grievously on all the country—how far it is defensive or offensive, how far it accords with, or contradicts, the policy which this government has adopted in relation to other interests, the House must determine.

There is no portion of the community more injuriously affected by changes in the policy of a country than the farmers; none have suffered more seriously by the repeal of the duties imposed during the war: none felt more practically the dependence on a foreign market for their means of exchange. While they were at his door, the price of goods did not affect him; produce and goods rose together, the same quantity of one would still buy the same amount of the other. Now the scene is changed; goods remain at their old prices, but it takes three or four times the quantity of produce to purchase the same amount. It is often mentioned, as a symptom of better times, "Goods are looking up." This may be, by some deemed an indication of returning prosperity; but, however it may be to others, to the farmer it is ominous of despair; his produce is looking down. When goods look one way, and grain another, the farmer must look to some new mode of turning his grain into something which will produce him his necessities.—While every change depresses domestic and swells the price of foreign products, he feels coercion and what it is to be forced, not from his occupation, but from all the comforts it once produced him. Till goods fall as much as a grain, or grain rises to the price of goods, the farmer pays two or three hundred per cent. more for them, though they may be quoted at the old nominal rates. He who, in other times, could pay for his iron by produce, or the use of his teams when their labour was not required on his farm, can now estimate the difference between buying at the forge or the store. When iron was at a duty of 32½ per cent. personal observation did not cause the objection that it forced the farmer from his occupation, or made it less profitable; when by the existing tariff, it was reduced from 39 per cent. to nine dollars per ton, it neither gave new employment nor increased profits to agriculture. In extending the observation to all other articles of which our country furnishes the raw material, or which when made at home, could be paid for in provisions, it is thought to be fully justified by the melancholy experience of the last four years. It has pointed out to the farmer in what true economy consists; it has learnt him what is cheap and what is dear; the difference between having his market at his door, or transferred to a foreign country. The books of the merchants, the dockets of justices and courts, tell a story that all can understand: it was not so when manufactures flourished; it cannot continue so when they revive; the farmer will be the first to profit by the change; his is the first interest that should excite our attention: though we may not legislate him into wealth, we may save him from the danger that hangs over him: while we refuse to counteract the coercion of foreign legislation, we don't make his occupations free by removing foreign restraints on his market, or give him an equivalent by securing him a new one. It is said, this new market cannot be afforded; that the farmer now feeds all our population, and can feed no more in any event. If this was true to its full extent, it could only apply to provisions. The production of raw materials which have now no value; the extraction of ores and minerals from the earth, which now will not pay the expense of the supply of fuel, which is now useless, the increased demand for pot-ash and dye-stuffs, for the various small items of the produce of a farm, which though

not necessities, are comforts and may add very importantly to the farmer's market as the same population have greater means of payment, all tend to enlarge his means of exchange, his sources of occupation. The mere necessities of life are few in number and low in value, their production is not the most profitable employment of agriculture, it is perhaps the most expensive. The garden, the orchard, the dairy, and poultry yard, the sty, and the stall are matters of no little importance, they afford more profit and require less labour than the grain field. The market for their productions depends, not on the mere amount of population, but the means of that population to extend their purchases beyond necessities to comforts and luxuries, the supply of these is the farmer's profit—the raising of them employs the labor and attention of children, (who are of no use in a field) by occupations in which are combined health, pleasure, economy and industry. If foreign bounties and duties were removed or counteracted, the culture of flax, hemp and wool would be no less honorable or useful pursuits of agriculture than grain; and there is one raw material for the culture of which this country is well adapted, in which is only required the attention of children to enable *insects* to labor for the emolument of the farmer—raw silk. These are all new sources of wealth by the establishment of manufactures, though the population is the same. There is another—the mechanics who are for want of employment now compelled to procure a scanty subsistence by the cultivation of the soil, without means to purchase, or stock or knowledge to cultivate a farm, who have nothing to their own or wealth of society: who add nothing to spare for the support of government, forming no part of the solid yeomanry of the country, who identified with its soil and strength, may be truly called the salt of the earth: but a miserable tenantry or mere occupants who having been forced by foreign policy from the occupations for which they are fitted, are now only waiting for some act of this government which will enable them to resume them; the number of these is not small and each one of these and their families will become new customers to the farmers. Foreign artisans must not be overlooked, foreign capital will flow to us in no small current, foreign owners and foreign artisans who are now waiting to see in our legislation, some assurance of permanent policy, they are a valuable and useful class of citizens abroad, and so far as our observation extends we should do them injustice in withholding the expression of our opinion that they are distinguished for their public spirit, their good conduct and devotion to the true interest of their adopted country.

There is one other aid to agriculture which must be admitted to be a natural consequence of the establishment of domestic manufactures. Wherever the market of the farmer may be, it will be permanent—co-extensive with the consumption of the country, it will expand with its increase. He will know to what objects to apply his labour and skill; the demand will be steady, he can vary his culture to meet the varying wants of society, he will look alone to his own government, to his own representatives for the rules of policy which may have a bearing on his occupations—which can be affected only by those who are united alike with him in their devotion to the common interest of their own common country, whose pursuits will intermingle with his, forming the common mass of national industry, from which no just government can withhold its protection.

With the notice of one other objection, the committee will close their remarks, with not less relief to themselves than to the House.

If manufactures will produce these effects, why are they not established? If the foreign article can be undersold, why is it not done without the aid of legislation? We answer—because the effects of foreign legislation cannot be removed by individual exertion or enterprise. Whatever may be done here by our citizens, to acquire the command of our consumption, is equalled by foreign individuals to retain it—each feel the advantages, know the profits, and make equal exertions. The superior numbers, and greater wealth

of foreign capitalists, is of itself a formidable obstacle, but when backed by the policy and wealth of a nation, by their laws and systems, the competition becomes unequal. To restore the balance, to make the competition a fair one between individuals, the weight of one government must be taken from the one scale, or balanced by the same weight of another government in the other. We might here ask, if this would ensure the desired protection—why withhold it?

When business has for years taken an established course, it is no easy matter to divert it: the progress of our manufactures was slow till the late war. The consequent diminution of imports, and the duplication of the permanent duties, gave them a powerful impulse: they were rapidly advancing to meet the full demands of the consumers; the revulsion caused by the present modification of the tariff, has been in force ever since. If it has been beneficial to the country, then let it continue; but if injurious, let it be stopped; legislation caused, and alone can cure it. The war duties were not imposed for the protection of manufactures, and repealed when the object was found unattainable or prejudicial; they were imposed for revenue—the object was effected, they protected manufactures—the country prospered, an excise was built on manufactures—the support was mutual. The government wanted revenue, and obtained it; it now wants it and the same means in their power, why then not resort to them? If for no other, at least the same, reasons as before. It ought not to make revenue the less acceptable because it encourages domestic industry.

If the enterprise and capital of individuals were competent to the object, it must be the work of time, before it arrives, the public resources will require new means of supply: it then becomes the duty of Congress to hasten the time, and this for its own protection and support. But if it should be true that, in the present state of the world, no new manufactory can be successfully established without legislative aid—that it is true, is proved by the experience of all manufacturing nations, confirmed by our own, and it has, by one of our greatest statesmen, been declared to be a maxim of universal application; the fact once established, it would be in other subjects deemed superfluous to assign the reasons, for the want of reasons cannot do away facts, but it being required on this subject that no proposition can be made out from fact and experience alone, it is better to meet than evade the requisition. A most obvious reason occurs at once, that a new manufactory can only attain success by excluding an old one which is in possession of the market; without the aid of a law on either side, or the competition of any capital, except of the individuals who are struggling for the market, the one who can make it the interest of the consumer to purchase from him must prevail, if the capital of both is equal, if it is unequal the greatest will eventually prevail. The competition is not for the momentary, but the permanent command of the market, the losses during the temporary contest, will be refunded by the future profits when the market is secured. Who then can hold out the longest, becomes the question. This is at once settled, when a government bounty comes in aid of the one set. An excise drawback, or a custom bounty, is a contribution from the public funds, in aid of individual enterprise, to acquire or retain the supply of a foreign market; it is not merely an addition to the capital of the individual, but a gratuitous donation to him. Competition must cease between them, unless one individual has funds equal not only to the other, but to his government likewise. Hence no new establishment which diverts employment from an old one, can under such circumstances succeed. It will be an ungenerous objection, to say that our government is not bound to furnish capital to manufacturers, that it is not asked or expected. But it is understood that, in answering the objection now under consideration, it is taken for granted, that manufactures once established are of advantage to the country at large, and that the question is, whether government should interfere to aid them in their infancy or whether such interference is necessary. If this question is answered yes,

then it is hoped that it will not be contended that it is generous or just to withhold that interference on account of the capital of the persons concerned; that moderate capital, skill, industry and enterprise must be suffered to sink under the foreign action brought to bear upon it; nothing be thought worthy of legislative aid, but immense capitals, which require less in proportion to their amount. While on this subject, it would be proper to remark, that before this objection should have any influence on us, some standard should be fixed, some sum named by law, which should be deemed as bringing the proprietors within the policy of protection. Manufacturers would then know that if they invested to that amount, they could compete with the foreigner. It is not so important what sum should be named, as that some should be fixed upon; it is believed that a republican legislature would not require an amount beyond the means of their constituents to procure. If it was more consistent with theirs, and the principles and practice of the government, to graduate the protection in the ratio of the wealth of those who asked it, that would be more just than to refuse it wholly to the middling class. If the nation at large will be benefited by protection to manufacturers, it is no answer to say their capital is not sufficient; it must say what is sufficient; till that is done the answer will not be accepted for it affords no rule, no security, it means any thing it means nothing; it becomes mockery. If manufacturers are a national interest and justify protection, there cannot be a better rule more equal and fair than to require, as a preliminary to protection, the investment of the same amount of capital as by our uniform legislation for thirty years has been required of another co-ordinate interest—commerce; equal justice to all makes it our duty to make the comparison; it is done with no unfriendly or invidious feeling, but merely to remind the House that want of capital has never excluded the merchant from the pale of protection, if he had enough to commence his operations, those operations have been protected from foreign aggression—It is believed that the capital invested in manufactures has been equal to the investments in commercial pursuits in proportion to the amount of business done, and including the credits at the custom house, that commerce has been conducted more on credit than manufactures.

A linen or glass manufactory is about to be established in our country, there is a capital to erect the buildings, purchase the machinery, and stock to commence; the proprietors meet at once competition from the following sources; foreign manufacturers, foreign exporters, American importers, American retailers, and a foreign government. The American manufacturer stands alone; he asks for a fair chance, fair play, willing to take a contest against equal force, but unable to contend against numbers, wealth and power, he calls on his government to equalise the competition, to make it individual, to impose on the importation a duty equal to the premium which the foreign exporter receives from his government, for the express purpose of breaking down the competition. A custom bounty or excise drawback is not to give the command of the home consumption, that is done by prohibition and duty, it is to force and command the foreign; the bounty or drawback does not make glass or linen cheaper to the people of England, it is to prevent us from using our raw materials, to compel us to use theirs, to employ their labour and give a value to their industry. The American manufacturer is the only person who can obstruct their policy, if he can be broken down the American people must depend on England for a market as well as for the articles of their consumption. It would not be unreasonable to call on this government to give them duties beyond the no protection except of a negative kind, the bounty received from a government equals the duty imposed by the other yet even this meets with objections, it is called a restrictive system. In the case of glass the oppression on our manufacture is still greater, the custom, bounty and excise drawback is equal to 23 cents a pound, yet the proposed import duty of 10 cents a pound has not (except in

one memorial to the liberal principles of which, the committee must again give their approbation") been exempted from the general and heavy charges made against the new tariff. Unless manufactures are to be proscribed, if those engaged in their pursuits, and to whose benefit they tend, are to be thus abandoned, if the unequal and in part unnatural, anti-national pressure under which they labour is to be increased by a foreign government and ours stands neutral, it may be asked for what government is instituted, where are the benefits imparted to them? The farmer has the raw material, the artisan the capital and skill, but they cannot use it. If on the faith of a revenue system the capital is invested, the labor of years is lost by a reduction of duties below the amount of foreign bounties and drawbacks. It is not the manufacturers alone who suffer; they alone, it must be remembered are the class of men who can ever interpose between the importer and consumer; put them down; the agriculture of the country is completely dependent on foreign powers. Such is our present situation; the people of this nation cannot believe it is their interest to remain so; they support the government and ask protection—the committee think it their duty not to withhold it, and to afford it to such extent as will give a fair opportunity of bringing into active and useful operation all the resources of the country; to give a market and a value to all the products of our soil; to counteract foreign legislation, so far as it bears on the industry of our own people, by directing its pursuits and occupations to subserve the policy and interests of other nations.

If it should be remarked that the proposed bill falls short of the principles on which it is founded, it must not be alleged as evidence of a want of confidence in their correctness, but of the deference which is felt and paid to the opinions of those who differ from us in their views, equally conscientious with ourselves it was due to all the members of this House to convince them that our convictions are so decided and deliberate, that we would be content for the present to lay a proper foundation, leaving it to experience to direct what should be built upon it; if insecure, the more easily removed; if the substantial basis of national industry, the easier to finish the structure.

* Richmond.

CULTURE OF MANGEL-WURTZEL.

Experiments of Governor Alexander Beaton,
(concluded from No. VI. page 46.)

Having thus detailed these experiments, I shall now proceed to offer a few remarks, which will show the important benefits that might soon be derived from a general, and extensive culture of this excellent vegetable.

It certainly possesses advantages over every other plant hitherto introduced in field culture. Its produce is immense, and I have found it to grow, with considerable luxuriance, upon land where no other vegetation was ever seen.* It has also the singular

* This was determined by an experiment I made soon after my arrival here. I selected a barren ridge, between two deep ravines, on the north-west side of High Knoll. From its situation and declining surface, no moisture could be retained. On the 27th August, 1808, it was trenched, and on the following day sown with sixteen different sorts of seeds, so that it had not the advantage of the meliorating effects that might have been derived from exposure to the air and atmosphere. For a long time there was no appearance of vegetation; at length, in the beginning of April, 1809, seven months after sowing, and when it had been soaked by the rains, I observed the drill of Mangel Wurtzel one fine connected line of thriving plants—the fifteen rows of other seeds, excepting a few of the rape, had not vegetated. This is a positive proof that Mangel Wurtzel would grow in almost any soil or situation. The seeds which were sown at the same time as the Mangel Wurtzel, were Coffee, Cotton, Wheat, Barley, Oats, Pease, Buck Wheat, Spring Tares, Lucern, Burnet, Sanfoin, Silla,

property of being unmolested by an insect (I believe the dolphin fly,) which is here extremely destructive to cabbages, turnips and radishes. I have very often observed where alternate plants of cabbage and Mangel-Wurtzel were growing in the same rows, and touching each other, that whilst the former were absolutely annihilated by that destructive insect, not one was to be seen on the Mangel-Wurtzel leaves.

The Mangel-Wurtzel, when fairly established in the soil (which, like every other crop upon an extensive scale, ought to be just before the expected rains in January and February, or in July and August,) will soon acquire such vigour as to become almost independent of rain; for having a tap root, penetrating 12 to 18 inches, or more, into the soil, it will always find sufficient moisture at that depth for carrying on the process of vegetation. In the course of five or six months, from the seed, if sown or planted in good soil, three cuttings of the leaves may be obtained, which may average about three pounds from each plant; and the roots will then attain weight of five to ten pounds each. Wherefore it seems to me, after every attention I have given this subject, that the most profitable culture would be to take three cuttings of the leaves, and at the third cutting, to dig up the roots—these, as well as the leaves, afford a nutritious food for cattle, sheep, hogs, &c. The leaves are also an excellent substitute for spinae.

It is very probable that a more abundant produce from Mangel Wurtzel than appears in my experiments might at all times be secured, if the lands were manured and carefully prepared for its reception, and the proper seasons of sowing and planting attended to. In a piece of strong land at Plantation house, newly broken up, without being manured, some of the plants from seed sown on the third of January, were set out on the 6th of February, 1809. On the 11th of October following, I sent on board his majesty's ship Lion, fifty of those plants, which were the finest I had ever seen. The following were the weights and circumferences of the five largest.

	Weight of the whole plant.	Circumference of the roots.
	lb. oz.	ft. in.
No 1.	— 41 3	2 1
2.	— 39 1	9
3.	— 39 6	1 10
4.	— 38 0	2 0
5.	— 37 14	1 11

At Longwood, Colonel Broughton has lately taken up some very fine specimens from land that was not manured—they were of six months growth from the seed—the leaves have been cut twice. Many of the roots weighed from six to ten pounds each—but admitting even the lowest of these rates, and allowing one pound of leaves at each cutting, the produce would be eight pounds from each plant; which, at 20,000 plants to an acre, would be 160,000 pounds, or about 70 tons per acre, of nutritious food for cattle, in the short period of five or six months from the time of sowing the seed. Can any thing place the importance of the culture of Mangel-Wurtzel in a more obvious point of view than this deduction?

But the largest plant that has yet been produced here, is one I sent to England, with several others, in July, 1810. It was raised from seed, put in the ground on the third of March, and transplanted to land newly broken up, on the first of May, 1809—when it was taken up in July (that is, at sixteen months from the period of sowing) the circumference of the crown of the root measured 37 inches. It had about twenty strong horizontal branches, two or three inches in diameter; the leaves and small ends of those branches were cut off, and weighed 52 lbs. The root and remaining parts of the branches on it, in the state it was sent to England, weighed 63 lbs. In all, the weight of this one plant, from unmanured land, was 115 pounds. I have been since informed it

Checkory, Rape and Sunflower Not a plant of any of these, except the Rape, which soon after died, ever appeared.

was by far the largest of the kind ever seen in England.

ALEX. BEATSON.

St. Helena, 15th October, 1811.

NOTE.—The Board of Agriculture cannot admit that any accuracy attends the method pursued by Gov. Beatson, in ascertaining the acreable produce of the crops here noted; nor is it at all essential that Mangel Wurtzel should yield so immensely as it is stated to have done in these trials; it is sufficiently clear, that the produce is very great, probably exceeding that of any other root. The great effect of Guano manure is an object particularly deserving attention.

GRANO MAZZOLO—LEGHORN BONNET STRAW.

We received some weeks since a small parcel of this Wheat, which enabled us to give some grains of it to many persons, with a particular request to have it cultivated, that the Straw from its future produce might be wrought into Bonnets. We had so little of the seed, that it was not in our power to send enough to any one to begin the manufacture of its Straw this year. But as many persons will no doubt save a plenty of the seed this summer, to sow next spring, with that intention, we now publish the instructions that were given with the seed to the Massachusetts Agricultural Society, by Mr. Ombrosi.

[Editor Am. Farmer.

Directions for Sowing, Gathering and Bleaching.

"The wheat is of the same kind of which bread is made; it is sown in the month of March, and from this circumstance, is called by the Italians *Grano Mazzolo*.

The first requisite in the straw for manufacture is fineness. To obtain this quality, it is sown only in dry and sterile soils, and extremely thick, to prevent its growing large at the root. In Tuscany, the proportion to that sown for grain, is four to one, on an equal extent of ground. When the blossoms first appear, or the ears of the grain are beginning to seed, the time for gathering the straw has arrived—this is about the 24th of June, unless vegetation has been unusually favoured, or retarded by the season. The stems are pulled up by the roots, made into small bundles, and dried in the sun. When dry they are stripped of the leaves which cover them, as far down as the lower joint. To bleach the straw, the bundles are spread open to the morning dew and to the sun, and are always taken under cover in case of rain; for rain would stain the straw, and greatly impair both its beauty and its value."

We have just received a specimen of the Leghorn straw, from Dr. Samuel L. Mitchell, with the subjoined note recommending its cultivation and manufacture. Forty of these straws would scarcely measure as much round as would a single straw of common wheat, and their colour is clear and pale, but beautiful.

New-York, 30th April, 1821.

MY DEAR SIR—My amicable relations with Tuscany, in Italy, enable me to offer you, for your Port-Folio, a sample of the dwarf wheat, from which the fashionable Leghorn bonnets are made. The scientific history of the plant, a species of *Triticum* or *Wheat*, is given by Dr. Philip Gallizioli, in the second volume of his *Agrazian Botany*; a copy of which in 4 vols. 8 vo. from the learned and accomplished author, is in my Library.

I hope you will endeavour to interest the ladies in the culture and manufacture, as well as in the consumption of the article. Here, as far as they know it, they are becoming enthusiasts for raising and working it.—"Ceres," say they, "were a crown of Wheat ears, and we in this age of economy and patriotism may venture, without reproach, to cover our heads, with a hat of Wheat ears."

I need not recommend to you, the economical consideration, whether the region watered by the Tapasco, will not answer as well for its production.

Truly, and with esteem and regard, yours,

SAMUEL L. MITCHELL.

For the American Farmer.

What Grass can be substituted in Georgia for RED CLOVER? What will Cure Horses of the BOTS?

SIR—The time is coming when we must change our domestic economy and method of agriculture.—The present method impoverishes our lands to an alarming extent. The cotton crop takes up so much time, that we mature but little and fallow none. The heat of our climate destroys the clover. Plaster of Paris is here deemed as inert as sand. Hence the ravages made on our Woodlands, and the outcry about old fields and worn out plantations. The culogiums bestowed upon the inventor of our saw-gins, were many and just; but the man who shall introduce a substantial grass for grazing, will deserve more of his country. The situation of our live stock is bad indeed unless corn-fed. Crab grass is the only grazing, and corn-blades are our only fodder. I therefore wish to learn from some of your southern correspondents, what species of grass would most probably support our cattle in this warm climate? All experience proves the utility of the cultivation of northern grasses. The white clover thrives in our wet lands, especially in the upper parts of the state; but we want to obtain a grass that would be a substitute for Red clover, and to accomplish this, there are many planters who would incur heavy expenses. Accept my best wishes. N. G.

P. S.—Should you know of any remedy for Bots or Grubs in Horses, please to publish it. This disorder is very destructive every year, and our people make use of many remedies, among the most effectual of which are linseed oil and Red Onion Juice.

I believe that mules are not liable to this disease, a circumstance that adds greatly to their value.

ON PEA HAY.

September 11th, 1815.

SIR—It seems to be conceded on all hands that an ally to Indian corn, on which we have heretofore relied for the support of our horses and stock during the winter and spring, has become absolutely indispensable, for it can no longer be concealed, that under our present wretched system of husbandry, this grain exhausts very much; and whilst it yields every succeeding year, a more straitened supply, returns less ofal to the earth than any other we grow. By some unaccountable oversight, the stalks which are in other states carefully husbanded, and turned to good account, both as an article of food and manure, are with us, suffered to remain through the winter exposed to the influence of sun, air and frost, or else a half starved drove of cattle is turned in upon them to glean a scanty subsistence. To the exhaustion that lands necessarily experience in the production of every kind of white grain, is thus added waste, and the serious damage that kneading them into mortar, invariably occasions. In this parched state, all the benefit they may have derived from frost is entirely lost; and they are likewise prevented from inhaling those particles from the atmosphere, which constitute so essential a portion of the food of plants.—For remedying these evils, which were so severely felt in the diminished product of our crops, and increased poverty of our farms, many of us had recourse to small grain, which it was confidently hoped would at once ameliorate the soil, and supply all deficiencies. Among these, wheat and rye had the preference; but experience, so far from justifying our choice, has compelled us to admit that they impoverish much more than Indian corn, that they yield less to the acre, and that their litter is not to

be compared, either in quantity or quality, with that of Indian corn, whilst the food they furnish, is also less substantial. With the same view, oats have been tried, but owing perhaps, to the small quantity of seed sown to the acre, they have proved even more injurious and less productive than either wheat or rye. Notwithstanding, however, the ill success of these experiments, we ought not to be discouraged, since other crops may do for us, what we had too inconsiderately expected from those of small grain. As promising a more favourable issue, we earnestly recommend leguminous crops, particularly pease, which will answer the double purpose of shading and opening the soil.—They give besides an excellent food, and the hay made of the vines is superior to any we have ever tried. We have known several horses to be kept through the winter, in excellent order, upon what was gathered from a corn field of small extent. It is no material objection to them, that they are difficult to cure, for if that be the case, they are also not easily spoiled.—As another auxiliary, let us bring to your notice, oats, which ought, however, to be sowed at the rate of between four and five bushels to the acre, and cut before they shoot the ear.—Oats have been found to do well at the northward, on lands not differing in quality from our own. It is, however, to be distinctly understood, that they are to be grown in this manner, only on farms which have no meadows. To these may be added Guinea Corn, which succeeds well here, and affords a greater quantity of green food for soiling, than any plant I am acquainted with. It will besides enable us to abandon pasturing our fields, which is perhaps the most fruitful source of their poverty. Chicory and mangle wurtzel, or the white beet, may also be tried. The former of these is spoken highly of in England, and may answer well here.—It is greedily eaten by horses and sheep. Like Guinea corn, it may be cut several times through the summer. Above all we recommend meadows. To these only can we look for effectual relief from the incumbrances under which our corn cribs daily groan; and for a constant supply of manure, upon which, it cannot be too often repeated, all economical farming must be bottomed. We have not noticed cabbages, potatoes, parsnips, turnips, carrots, &c. because we do not think they will answer. Most of them have not done well at the northward, and from the trials we have made of them, they will do worse here. As coming within the subject of economy, we recommend that all manures be diligently saved and applied; that weeds be carefully extirpated; and that farms should never be burthened with supernumerary horses or cattle. I am, &c.

JOHN L. NORTH,

Chairman of a Committee.

J. T. LEWIS, Esq. Corres. Sec'y.

Pendleton Farmer's Society.

(To be continued.)

CULTIVATION OF MELONS, CHANGE OF SEED, &c.

Extract of a letter to the Editor, dated (S. C.) April 15, 1821.

Another reason which induced me to forward these melon seed, was the information given me by a gen-

tleman from New-York, who assured me that the melons from southern states, were considered of a better flavour than those grown more northwardly, and this was confirmed by some young men of my acquaintance, who observed that the melons which they tasted during their tour in the north, were insipid in comparison with those of this state. The delightful flavour of ours, I think, greatly owing to the method of culture pursued by us. On the plantations near the city, and from which the markets are in a great measure supplied, the melons are very rarely planted in the garden, but either in the sweet potato or the cotton field. The best are raised in the cotton field, and what would to most other plants be their destruction, serves to heighten the flavour of them; this is the shade afforded by the cotton plants to the vines and melons; and however curious it may appear, I can assure you, that with no other attention than that bestowed on the cotton, during its culture, these melons are superior to any that are raised in the garden. I do not mean as to size, but flavour. A neighbour of mine, who has for many years sent melons to market, and whose melons were eagerly sought after, planted all of his in Cotton Fields. The melons raised in potato fields rank next to these, being partly shaded by the rich foliage of the potato vine, but in the garden they are necessarily exposed to the violence of the sun.

I have tried both methods, and I now never think of planting in the garden. How far these remarks may be applicable in your climate, I am unable to say; but I think that it may be worth your while to make the experiments in your corn and tobacco fields.

GUINEA CORN is a good substitute for Grass; how can manure be saved best from Swine in Pens and at Distilleries?—A PLOUGH MAKING ESTABLISHMENT would be profitable in N. Carolina. BURKE COUNTY, (No. Ca.) April 2, 1821.

SIR—I enclose to you in this letter, a few seeds of Guinea Corn; if you have not seen any before, it may be a matter of curiosity to you. It is cultivated in the lower part of this state, for soil and as forage; it is particularly valuable to those parts of the country where the cultivated grasses will not succeed—it is cultivated like Indian Corn, but planted closer together, shoots out prodigiously, and may be cut five or six times in a season.

And sir, as I am one of those farmers, who believe that the great secret of farming consists in an industrious collection and skillful application of manure; that the first object is fertility; and that any hint may be useful that is in any degree calculated to hasten, "this consummation, so devoutly to be wished" by those of us, who depend on the good genius of the Plough for support; I have been tempted, by the prompt and obliging manner in which inquiries have been answered through the medium of your paper, and information solicited from your numerous correspondents, to request that they would state the best method known; 1st Of saving manure from fattening hogs? 2dly. Whether any good method has been devised, for saving manure from hogs running, at a distillery?

I feel a wish to have these inquiries satisfactorily answered, because I have experienced the superiority of manure saved from fattening hogs, over farm pen, or stable manure, when applied to Indian corn. I last year succeeded in saving 5000 cubic feet of manure, from 80 hogs fed nine weeks; but, as I am convinced that much more might have been saved, I need not

go into a detail of the method then pursued by me—I have not yet succeeded in saving manure, from hogs running at a distillery.

From the economies that I have seen on Burden's Plough, I am anxious to try it, and wish to be informed whether they could be procured to the southward, say in Charleston, or Fayetteville, and at what price? And whilst on the subject of ploughs, permit me to mention, that I believe that the establishment of an agency for the manufacture, and sale of improved ploughs, at one of the numerous Furnaces, in Lincoln county of this state, would contribute much to the advancement of agriculture in the western parts of North Carolina. At those Furnaces, excellent iron work could be made, the other material is abundant, and I have no doubt such an agency would be profitable to the patentee or any other good workman. Barnard's Ploughs, are the best that I have yet used; they are Wood's improvement on Freeborn's patent; all who have tried them, bear testimony to their excellence; the cost and difficulty of procuring them, alone prevent their being brought into general use. You will excuse the diffused and hasty manner in which I have written you; and accept my best wishes for your success. Very respectfully,

Your obedient servant,
I. T. A.

For the American Farmer.

MILLET.

Remarks on its cultivation, use and varieties.

SIR—If you will obtain for me from E. Ruffin, Esq. and Doctor Coleman, specimens of all the kinds of Millet Seed, which they mention in the "Farmer," I will sow them this spring, and give you their Botanical names. It is impossible to be accurate by calling plants, similar in nature by their popular names. The Millet of Pennsylvania is the "Panicum Italicum," and you will find it described in Rees' Encyclopedia, fully by that name. And in Miller's Dictionary, you will find that a vast many species of the genera *Holcus* and *Panicum* are given, and it is to those that Miller refers under the head Millet. Your Society, or Baltimore Library, ought to get the last edition of Miller's Gardener's Dictionary, by Professor Martin.

I am anxious to clear up the confusion about these seeds. The *Panicum Italicum*, is an excellent grass, and should be cultivated at your farm—no grass will produce so much green fodder as Millet. Do not suffer it to stand until "dead ripe," because the stalks will be hard; but cut it before the seeds are perfectly ripe; after drying set it up in small bundles for a day or two in the sun, and the sap in the stalks will ripen the seeds; then cut it in a box and feed it thus; threshing out or beating out the seeds if you please, and nothing will go further.

The seeds ground make admirable slop for cows, and Mr. Peters says, that when the seeds are ground and bolted, the flour raised with yeast makes admirable cakes; and when made into mush and fried, it is superior to fried corn meal mush. The people of the "ancient dominion" will not believe this. Half a bushel is the dose for an acre, and time of sowing is about the

middle of May. I have lately received from Russia, some *shelled Buck Wheat*, and when boiled, and the water considerably evaporated, I have found it excellent, eaten with milk or with butter. Accept my respects. J. M.

For the American Farmer.

CULTIVATION & MODE OF GATHERING CORN, &c.

GLOUCESTER COUNTY, (Va.) April 28, 1821.

DEAR SIR—Some numbers entitled "Rural Economy," having lately been published in your paper, I ask permission to offer a few comments on that portion of them which relates to *Indian Corn*, as it is a staple article in our section of country.

Having no acquaintance whatever with the author, I could have wished that he had given us something more definite in regard to his practice as a cultivator of corn, than his "acknowledged few years experience"—because his assertions and instructions differ in many respects, not only from what 30 years culture of corn have taught me, but from almost all that I have ever heard from the old corn-makers throughout the tide water section of the state. Not that a mere novice (which I am far from saying this gentleman is) may not sometimes, in a happy moment of inspiration, strike out an invention which will put to shame the old plodding practice of centuries; but I think I may venture to say, that the chances are considerably against it. Now, whether the author of the numbers on "Rural Economy" be a young gentleman, who writes more for his own amusement, than for the information of others; or an agriculturist of sufficient experience to teach others the art of agriculture, I know not; but this much I do know, that corn is not a staple article in Fauquier, and that it is so in every part of Virginia, from the heads of our navigable rivers to the sea board. I also know, at least I think it highly probable, that the culture of corn, or indeed of any other article, will be better understood and practiced where it has been cultivated as a staple production both for domestic consumption, and for market, than where it has not been used for both purposes.—With these prefatory observations, I now beg leave to submit certain remarks on what this gentleman says of Indian corn, and its culture.

In some of his preliminary statements I entirely agree; but there are others again which I confess to my shame, that I cannot understand. For example, I perfectly acquiesce in the assertion, that "on a soil positively barren at the surface, nothing can be lost and much may be gained, by turning it under from seven to twelve inches"; but how to make this twelve inch turn under, I know not. I also think him entirely right in determining not to go "into a chemical analysis of water, air, light and caloric," but to confine his meaning of the old familiar terms "sun, air, and moisture" to "these natural elements, as they are known to predominate in our atmosphere"; for we planters and farmers might be at some loss to recognize our old acquaintances in a dress different from what we have been accustomed to. What he

can mean by "the growth of grass in the abstract not injuring that of corn?" I cannot comprehend; because in our section of country we have always believed that abstracted grass, or grass in the abstract (which I presume is pretty much the same thing) had no growth at all. In his declaration that "an army of grenadiers, attached by patriotism to its home—to the endeared land of its nativity, is invincible," I am very sorry that I can by no means agree; for whether he applies it to man or corn, it is equally inapplicable. Many grenadier armies of corn I have seen conquered in the course of my life to the great grief of the proprietors; and history informs us of numerous grenadier armies of men, that have also been compelled to yield to superior numbers. His next assertion seems to me equally inadmissible, without many limitations or exceptions. It is this, "Indian corn is the most vigorous plant in the natural world: after it shall have become knee high, no wet destroys—no drought kills—no grass can injure it." I will not take upon me to affirm that there may not be other worlds besides the natural one, nor will I venture to say, that if there are, they may not contain plants of a still more vigorous growth than Indian corn; neither will I deny but that knee-high corn in Fauquier, may be capable of flourishing in spite of wet, drought or grass. But I will positively assert, that throughout the whole country in Virginia, where most corn is made, not only drought and wet, but even grass, will often injure—nay, entirely kill it.

In assigning the proper distances at which to plant corn, the author of "Rural Economy" gives only two—to wit: squares of 4 or 5 feet. With us the distances are varied from 5 and 5½ feet each way, two or three stalks in a hill; to 5½ one way, and every less distance the narrow way, down to nine inches. When your correspondent comes to speak of harvesting the crop, by way of giving his own mode the preference, he undertakes to contrast it with what he calls "the customary way of management." That he must have seen the mode which he describes, I can have no doubt, for he does not speak of it as hearsay; but I can assure you, Mr. Editor, that I who live in the midst of a corn country, and have cultivated corn, as well as seen it cultivated for 30 years, have never witnessed a process similar to the one described by Mr. B. Our blades, instead of being placed loose between the stalks, before binding, are bound up as fast as they are pulled, in bundles which when dry, will require from 2 to 4 to weigh a pound. After hanging two or three days on the stalks, they are collected at night and heaped, or put into cocks, if the weather be threatening. In three, four or five days, according to the season, they are made up into large stacks, where they remain, until carried away for use. This fodder is fully equal to the best made hay, both in smell and nutritive power. The tops are cured with almost equal care.—Whether the blades and tops thus managed can possibly be inferior both "in quantity and quality" as provender for stock, (which Mr. B. asserts,) to the same parts of the corn plant exposed as Mr. B. recommends, from the middle of September, for several weeks—nay, often

until the last of November. Any man, I think may satisfy himself, who has ever noticed the difference in smell and appearance, between finely cured and well preserved hay, and that which has been left in small cocks, badly put up, and exposed to the weather, until both the fine smell and colour are gone. That it may not be worth the additional labour and expense to cure corn blades and tops as we do, where there is plenty of good hay, may possibly be true; but that tops and blades in the state in which they must inevitably be when they are both left on the stalk and in small unprotected, loose piles or cocks, for many weeks, are superior either "in quantity or quality" to those managed as we manage them, I know to be *untrue* in regard to our country; although I will not say but it may be otherwise in Fauquier.—Another objection to Mr. B's method as applicable to the country where corn is relied upon as one of the chief products for market, is, that if any of the varieties of corn which we cultivate, is cut up and put together at any time before the shuck be dry, in such heaps as are always made in the country where it is the practice to cut up and stack the whole plant, the cob and that part of the grain attached to it, will become mouldy, and contract so disagreeable a smell as to be unsaleable. This often happens when we put up our corn in close houses, even where the ears have remained for several weeks on the stalks, after both the blades and the tops have been taken away. The centre of a large bulk of corn, rapidly thrown together, and suffered to remain until the succeeding spring or summer, which is the usual time for selling throughout our corn country, will often be much injured, notwithstanding the previous exposure of the ears before gathering. These facts are matters of very long experience to all the old corn makers of our country—without any "I will venture to assert" about them. Still, if any gentleman, either young or old, will tell us something new and beneficial in regard to the culture and subsequent management of corn, which is applicable to our own soil, climate and situation—something too, that is matter of well tried experiment, rather than of crude hypothesis, we shall be very much obliged to him; otherwise, although he may choose to take "the King's highways" for the very benevolent purpose of giving us theoretical advice; we must be excused from regarding him as a competent teacher in matters wherein according to his own acknowledgment, he has but little experience.

TUSKARORA.

THE PROCESS OF INOCULATING GRASSES, OR CONVERTING ARABLE LAND INTO PASTURE by transplanting turf: as practised in the Island of Great Britain.

The arable land intended to be laid down, being cleaned and fallowed in the usual manner, a piece of good clean turf conveniently situated is selected, from which the plants are to be taken; and as soon as the ground is moist in autumn the operation commences, with paring the turf off as thin as possible, by a plough with a very sharp broad share, the turf is thrown into carts, and taken to the arable land, where it is set in small heaps, in regular lines in the manner of dung; it is then thrown about and chopped into pieces three or four inches square—a scarifier is then run through the ground for the purpose of levelling the cart

wheel ruts. Women and children are then employed to turn the pieces of turf, with the grass side up, placing them in regular order, at about six or eight inches apart, according to the size of the plants, and as the pieces are placed, the operators press them down with their feet. When the turf is all placed, a roller is run over the ground, which completes the process for the winter. In spring the ground is again rolled—no heavy stock are turned upon the young pasture in the first season, but sheep are turned upon it after the grasses have formed their flowering stems. These perfect their seeds, and deposit them over the vacant spaces, and in the second season, the ground is completely covered, by the extension of the mother plants and their young progeny. A permanent turf of indigenous plants is formed, which neither sickens nor die away, as is but too generally the case with seeded pastures in the second and third years. If it is wished to continue the land in grass from whence the plants are taken, the turf is only cut out in ribs nine or ten inches wide, and the remaining turf well pressed down with a heavy roller when the ground is wet. A top dressing of compost manure is applied, and the turf units in one season.

Beans are sometimes planted or oats sown *THIN* upon the transplanted pasture, as a set off to cover the expense; but when a crop of corn is taken, the pasturage is in a great measure lost in the first season, and the young pasture injured. The transplanting is generally done in autumn, and sometimes in spring—in either case, attention is paid to turning and pressing the turf into the ground, as expeditiously as possible, so as to prevent the frost from injuring the roots. By the transplanting system, a permanent turf is obtained upon a description of soil on which it is extremely difficult to get a turf of good grasses by any other means heretofore practised in this Island.

NOTE.—Mr. Blyth, of Burnham, planted 50 single horse cart loads of turf per acre upon his pasture, but the quantity must be regulated by the means. The turf from whence it is intended to take the plants, is sometimes scarified and cross-cut before the paring plough is used. This operation is effected by an implement with scymetar lines *well weighted*, but the turf must be tender, the ground level, and free from stones, for this implement to work with proper effect.

The seeds of cow grass, and of some other favorite grasses are sometimes sown upon the transplanted pasture; but this is unnecessary when the indigenous grasses in the planted turf are good.

MILLET.

When should it be sown, and how?

ANNE ARUNDEL COUNTY, Maryland, }
May 3d, 1821. }

SIR,—Millet has of late been highly extolled and recommended; and particularly in a paper copied into the American Farmer of the 16th March—but, without any instruction as to the time of sowing, and mode of cultivation. If you have it in your power to give any detailed information upon the subject generally, its publication in the Farmer would no doubt oblige others who may wish to try it, as well as myself. Probably a later period than the *xxxv* publication of the Farmer, would be too late for the present season, if, indeed, that be not already the case. I cannot, however, help expressing some surprise, that such an extraordinary useful plant as the millet has been described to be, should not long since have been better and generally known. I do not find that Sir John Sinclair ever mentioned it in his Code of Agriculture—and the little that is said of it in Dr. Mease's Encyclopedia, is not very recommendatory—but, if it indeed be true, that it will yield, upon only tolerable good soil, two and a half to four tons of provender per acre, so excellent that all the stock on the farm prefer it to the best hay, we then have found a *grand desideratum* for farmers. I am willing to give it a trial.

"A LEARNER."

Directions for raising DOMESTIC FOWLS, with remarks on their habits

TURKEYS—Put them up at night, examine them in the morning, those that are not to lay, turn out, let the others remain in the house, feed them and set water by them, give them a little straw, or litter of any kind, that they may make themselves a sort of nest. If they lay before dark, turn them out to dust themselves. The eggs put in a box, or basket, where they will not be liable to be shook; twice or thrice a week, take them out one by one, and turn the part of the egg that was upwards, down, in order to prevent the yellow from cleaving to the side of the egg. When they want to sit, which you may always know, they will be on their nest at night; then have large nests made so high that they cannot see each other, let the ground be quite level and smooth where they are fixed, put about a peck of stable manure in each nest, next the ground, and plenty of the finest hay or straw you can get—on that, give them 19 or 20 eggs, feed and water them every day, and add fresh straw or hay to their nests two or three times a week—it is well to look at them two or three times a day, to see that they are all in their place—they are apt to go two on a nest, if they are not attended to. They generally go to sitting within a few days of each other—it is bail to have them to hatch at different times—when they hatch, and for a week after, they require particular attention. Sit patiently with them, a dozen times a day, as long as they will eat, and call them all the time, in order to rouse them, for they are sleepy things at first; feed them with corn meal made wet, put a little black pepper in it to give them an appetite; any thing of a hot nature, such as onion tops, pepper grass cut very fine, and mixed with the meal, is very good for them, and learns them to eat—they require less water than other fowls. When they get to be about a fortnight old, they are apt to get lousy; when that is the case, grease with a little hog's lard, the top of their heads, under their throats, and in their quills, and perhaps, in a few weeks after, it will be necessary to repeat the same operation; this may be done in dry weather.

MUSCOVY DUCKS—Require a place where they can, undisturbed, go in and out to lay their eggs. When they sit, they come out every morning early, to get a plenty of corn and water; they return to their nests, and you see no more of them until next morning. They will bring the young on a out to look for food—they want feeding, and water in a shallow vessel, that they may not drown themselves, and to be kept out of the rain; in a short time they will learn to go to a coop made with tobacco sticks, which ought always to have victuals and water in it—at first they eat but little; therefore, it is necessary for them to have it whenever they please, that they may eat often.

GEESSE—Make as many nests as you have geese, so high that they cannot see each other before they begin to lay their eggs. Keep them up until they lay an egg or two, after that, they will of their own accord, go to the same place to lay—take the eggs in the evening, and keep them in a warm room in a box of bran, and a cloth put over all—mark the egg, that you may know the oldest sit first. When they hatch, keep the young ones in a small place; say planks set up on edge, so as to form a pen, until they get strong enough to follow the geese, which will be in about ten days; then they require but little feeding, provided they can get plenty of grass and water put them up every night for fear of a rain. While they remain in the pen, have it moved from one place to another, that they may have fresh grass—feed them very often with corn meal, made quite wet—keep water by them, in a wide, shallow vessel. Eggs of every kind should be kept free from grease.

Give chickens as much as they can eat; keep them out of the rain, grease them whenever they get lousy; keep the hen house clean, and keep good nests. A. S.

MANGEL-WURTZEL.—ANOTHER VIEW OF IT.
Mr. Skinner.

The "Farmer" of April 29th, contains very high commendations of the *Mangel-Wurtzel*—

my experience has led me to a result, respecting this root, widely different from that to which you and others have arrived. In the spring of 1819, I procured a five dollar box of Cobbet's garden and field seeds, from New-York, which contained a considerable quantity labelled *Mangel-Wurtzel*. Having read much of this root, I assigned a rich spot in my garden for a thorough trial of it. The seed came up well, and the plants grew rapidly—from the English accounts, I expected a number of successive cuttings of the leaves, and I had no reason to complain that the growth of tops was not luxuriant enough. I would have obtained two or three cuttings, but my misfortune was, that I could not find an animal on my farm that would eat them. I was much chagrined at the unexpected refusal of my cattle to eat this, so far fetched and far famed fodder. But nothing, not even hunger, would prevail on them to swallow a single leaf. I had, therefore, only the gratification of ascertaining, as a matter of abstract speculation, that the *Mangel-Wurtzel* will produce more than one crop of tops in a season.

The roots, when fully grown, disappointed my expectations almost as much as the tops had done—but not in the size; for they weighed from an half pound to fourteen pounds each. My stock, with the exception of one ungainly looking calf, shewed a decided distaste for them, while they eat carrots, Swedish turnips, and potatoes greedily. As I was assured by books, that the *Mangel-Wurtzel* contained a great quantity of saccharine matter, (which I suppose must be indicated by the taste,) I resolved to allow an appeal from the unfavourable decision passed on this root in my barn yard, to my own taste; desiring to satisfy myself whether they would be good for cattle, supposing they would eat them. But here the former decision was affirmed; for I never tasted a more insipid vegetable. The palate certainly can detect hardly a perceptible portion of sugar in them, though it is discovered in such quantities by Sir Humphrey Davy's chemical analysis. I now conclude, as you may well suppose, that I had satisfactorily proved the inutility of the *Mangel-Wurtzel* crop: and I confess, my confidence in information, derived from agricultural treatises, was considerably shaken.

I do not send you, sir, an account of this unlucky experiment, expecting, or desiring to weaken the evidence in favour of the *Mangel-Wurtzel*, resulting from the experiments and opinions of such men as Sir Humphrey Davy, Mr. Cooper and yourself—I wish only to excite inquiry on two points. 1st.—Whether there is not a spurious kind of *Mangel-Wurtzel*, of which even Cobbet might have vended the seed. And, 2d.—Whether this root can be grown as advantageously in Massachusetts, as in the more southern states. If the kind I raised, should prove a valuable crop here, it will teach at least one farmer, not to place too much reliance on one or two experiments, however apparently decisive.

The seed I sowed, resembled the common beet seed, but was smaller. It precisely answered the description Cobbet gives of it. The roots grew, the greater part, out of the ground; especially those that grew large; and were of a

considerably lighter red than the common beet.

Yours, respectfully,
JOHN W. HUBBARD.
Worcester, (Mass.) May 3d, 1821.

Occasional Extracts to the Editor

RUTA-BAGA,

KEEPS WELL AND IS PRODUCTIVE.

Extract of a letter to the Editor, dated

PORT-TOBAGO, April 21, 1821.

Sir: As various opinions have prevailed relative to the product, as well as the length of the time the *Ruta Baga* will keep sound—I have it in my power to state that of all vegetables, they are least liable to injury during the winter, I have ever saved. I have at this date, 20 or 30 bushels as sound as they were at the time they were taken from the ground, which was a few days before Christmas, and after the very severe frost we had in December.—I sowed for them on the 29th June last, on rather a stiff soil, originally very poor: after covering the ground with stable manure, and ploughing it twice, not very deep, and harrowing once—they were once worked with the common hoe, and thinned the width of it, the tops were given to the cows from the time the root was well set in the ground, until they were gathered. The product was more than at the rate of 400 bushels to the acre, and the turnips large. When they were taken from the ground, they were permitted to remain several days encountering pretty severe frosts, and were then put in heaps of fifty or sixty bushels, and covered with wheat straw and earth. These were from seed purchased in Baltimore of Mr. Casey.—I also sowed on the same kind of ground, seed from the *Ruta Baga* set out in the spring, on the first day of August, and at the same time some common turnips. The latter were uncommonly fine, the others not worth gathering, although the tops are luxuriant. I have seen hogs and horses eat the *Ruta Baga* after refusing the common turnips. I believe either would have been still better had they been sown on the fifteenth of June, or indeed earlier; for the greatest growth in the roots, was from the last of September until frost, or after the tops had nearly ceased to grow.—We must have seed of the preceding years saving, as I am inclined to believe they cannot be brought to maturity in proper time from roots planted in the spring. D. J.

For the American Farmer.

Varieties of CORN, TREES and SHRUBS.

FRANKLIN, (Missouri) March 3, 1821.
Sir—My motive will be a sufficient apology for my addressing you. If I could in any way promote the good work, you are now engaged in, I would do it with pleasure.

I lately observed by your address in the paper, that you wished to procure the varieties of corn, that are cultivated in the U. States, and seeds or roots of trees, plants, &c.

OF CORN. The varieties here, are 1st. The common kinds of field corn. 2dly. The Mandan-corn, from the Indian village of that name. It is very early, and is generally planted in gardens. I have lately heard that a crop of it was gathered at Council Bluffs, and the produce of one acre was 120 bushels. 3dly. The Pop-corn, as it is vulgarly called; this is very prolific, and bears bunches of ears, tier above tier; and I think that if might be cultivated to advantage and saved by cutting it up near the roots, in the manner that Stock-corn is used in Kentucky.

4thly. Stock-corn, bears a long slender ear, and is dried for feeding cattle, without divesting it of its ears.

5thly. Broom-corn, and Chocolate-corn, or Holcus Bicolor. This corn might with proper management become an article of much benefit, it is used by the first settlers of this quarter of the country, instead of chocolate, and is a good substitute. The preparation is simple. I will if you desire it, give you the re-

ceipt for making it * It might very well be introduced in the manufacturing of Chocolate, and be a saving of much expense in the purchase of cocoa-nuts.

OF MILLET.—We have three varieties, and they are worthy the attention of the experimental farmer. **OUR COFFEE-NUT TREE**, is a tall forest tree, that grows on the Missouri bottoms, on the alluvial lands of Kentucky, on the Mississippi flats, and elsewhere. It is a beautiful tree, and would be highly ornamental, as well as useful. The Nut was used by the first settlers in Kentucky in place of Coffee—I tried it by way of experiment, and thought it very good.

The Honey Locust exudes a gum, not inferior to Gum Arabic for many uses. I made a trial of it, but I am not certain that it possesses any medical virtues, although I think, the qualities of the Gum Arabic, are rather neutral. The Honey-Locust, grows very large here.

The Catalpa and the Creeper that find a place in the gardens of the Eastern States, grow spontaneously here, and on the banks of the Ohio. With us the Creeper adheres to the trunks of our overgrown trees, and scatters its gay flowers to the passing wind.

Dwarf Plum-trees, grow near this, on Prairie land, the fruit is said to be sweet and agreeable. Early grapes grow there also. Natural plums are plenty, and of several varieties. Gooseberries, &c. &c. grow in great abundance.

Of Mint, we have a great variety, some with peculiar fragrance, and if I can find a suitable mode of conveyance, I will endeavour to procure and send you such seed, as may be in my power—and in any wise calculated to promote your useful purposes.

Yours, &c.

SARAH BELLA DUNLOP.

* The receipt and seed will be thankfully received and usefully employed by the Editor.

From the Vermont Yeoman.

A NEW SORT OF INDIAN CORN.

As I was on my way to Boston, in October, 1817, an acquaintance of mine told me that a man in Bedford, by the name of Porter, had raised that year a new sort of corn, that was early and large. Our corn having been cut off by the frost for two or three years, I was anxious to embrace an opportunity to get an earlier sort, and the eight rowed corn was so unproductive, I did not choose to plant it, and had not for many years—I therefore called on Mr. Porter, who took me into his corn house, where he shewed me the most handsome bin of corn I ever saw. The ears were large and bright, and from eight to twelve inches long; and there were from ten to eighteen, but generally from twelve to sixteen rows on an ear. Mr. P. told me that it was a fortnight earlier there than the little eight rowed Canada corn. I bought about three pecks of it; a part of it in the ear to show its quality. I gave away several quarts of it to my friends on my way home. On the 28th day of May, 1818, I planted a piece of ground containing eighty-four rods by exact measurement, with some of said corn. I furrowed my ground about $\frac{3}{4}$ feet apart one way; I then took yard manure, that was carried out and laid in a large heap the fall before, and spread it all along in the furrows; I then took a horse and plough and turned the furrows back on the manure; I then put three kernels in a hill, and planted the hills about 20 inches apart, which made it about twice as thick that way as the other. It grew very large, and was admired. "I never saw the like," was the general expression of all who noticed it. Some of my neighbors wished me to ascertain the quantity that grew on that piece of ground, which I have

done as nearly as I could with convenience. In September, I picked for seed the first ripe ears all over the piece, and traced up just 20 ears in a trace, and 160 traces, which produced 3200 ears. I have since shelled out a greater part of it, and calculated the remainder with which I have shelled, and find the whole to amount to 28 bushels. The fore part of October I gathered the remainder, and had it husked out in one evening, and laid it in a heap in my corn house; and the next day we picked it over, and that which was then sufficiently dry to put into the bin, we measured in a basket which holds $2\frac{1}{2}$ bushels of shelled corn, and had 26 baskets, which we judge would be as much or more than 26 bushels of shelled corn, which, together with 23 bushels of seed corn, makes 54 bushels; and we concluded that the part we refused to put into the bin was equivalent to the four rods which the piece of ground contained over half an acre—and by the cobs about in the field, we judged that the hens and turkeys had devoured 4 or 5 bushels. I therefore concluded that the whole product was as much as at the rate of one hundred and sixteen bushels to the acre.

It being a good season for corn, doubtless I should have had a large crop if I had planted my old sort; but I presume not so much by more than one quarter—this I ascertained by planting some side by side, and found its produce to be less than the new, by more than one quarter. Finding this new sort of corn to be so valuable an acquisition, and wishing to have it propagated as much as possible, I saved a large quantity of it for seed; and, that there might be a small beginning of it at least in each town in the state, I took 150 ears of it last October, and carried them to Montpelier, that the members of the legislature, who live so remote, that they would not otherwise have an opportunity to obtain it, might each of them take an ear.

SALMON DUTTON.

Camden, (Vt.) Feb. 15, 1819.

HOW TO PRESERVE SQUASHES.

Oxford, Chenango County, (N. F.)

APRIL, 29th, 1821.

DEAR SIR,

I have the pleasure of acknowledging the receipt of your melon seeds, and have planted some of them yesterday. In answer to your inquiry as to the best method of securing squashes from the frost, during the winter season, I state to you, our general practice. Soon after the vines are dead, the squashes are removed and placed under cover, in an out house, or barn, where they are suffered to remain, until we are apprehensive of a frost, and then we remove them to a dry cellar, secured from frost, where we place them on boards. They are to be put down on the boards, singly, and not heaped together: in this way, we preserve the acorn squash until March, and the pumpkin until February. If the cellar is not perfectly free from frost, the squashes ought to be covered with a layer of straw.

I am, Dear Sir,

With great respect,

Your obedient servant,
G. VANDERLYN.

BALTIMORE, May 7, 1821.

RYE from the Mediterranean.

John S. Skinner, Esq.

SIR,—A writer in the last number of the Farmer, wishes to know what has become of the remarkable rye which was growing upon my farm three years ago, and of which an account was published in Niles' Register, and other papers. For the information of your correspondent, he pleased to state, that after two attempts, which but partially succeeded, to make it a winter grain, I am induced to believe that it will answer much better as a spring crop, and shall keep the produce of about an acre and a half, which was sown in November, and consequently much winter killed, for seeding with the next spring.

Respectfully, Yours,

E. S. THOMAS.

THE FARMER.

BALTIMORE, FRIDAY, MAY 11, 1821.

PRICES CURRENT.

Flour, from the wagons, \$ 8 $\frac{1}{2}$ —Whiskey, from do 23 to 24 cts per gal.—Hay, per ton 18 to \$19—Straw, 7 to 8 \$8. Wheat, White 80 to 85 cts—Red, do 75 80—Corn, 33 a 34 cts.—Rye, 35 to 37—Oats, wharf 20 to 25 cts—Barley, 25 to 30 per bushel—Cod fish, per quintal, wholesale \$3, retail ditto \$4—New-England Beans per bushel, \$1 12 $\frac{1}{2}$ —ditto Peas, 7 $\frac{1}{2}$ cents—Plaster in stone \$6 per ton—do ground, \$1 35 per barrel, 33 cents per bushel, \$3 per ton—New Orleans Sugar \$7 50 t. 10—Muscovado, do \$7 50 t. 9 25—American White Lead, \$12 50—Ground, do \$13 a 14—Lansed Oil, 75 cts—Feathers, 40 to 45 cts—Potatoes, per bushel, 62 $\frac{1}{2}$ to 75 cts—Shad, new, \$6—Herrings, \$2 t 2 $\frac{1}{2}$, declining—Fine Salt, 45 per 100 bushels—Ground Alum do 46 to 48—S Ubes, 50—Cadiz, 38 to 40—retail do. Turkeys Island, 75—Cair-zait, 60—Live Cattle, 5 to \$5 50—Beef, prime pieces, 8 to 10 cents—Corn Beef, 7 cents—Hutton, 8 to 10 cts—Hams, 10 to 12 cts—Middings, 8 to 10 cts—Butter, 20 to 25 cts—Eggs, 12 $\frac{1}{2}$ cts a dozen, 8 to 10 cts per lb.—Tur, \$1 50—Turpentine, \$1 87 $\frac{1}{2}$ to 28; Pitch, \$2 $\frac{1}{2}$; Rosin, common $\frac{1}{4}$, bright do \$3 per barrel—Varnish, 25 cts—Spirits turpentine, 30 cts per gal.—Cotton, gond Upland, 210 to 215 cts—Very dull—Rice, 3 a 3 $\frac{1}{2}$ cts—ship and flooring Plank, \$5 to 27. Shingles, hes, 6 $\frac{1}{2}$, 6 $\frac{1}{2}$, 6 $\frac{1}{2}$, 6 $\frac{1}{2}$, 6 $\frac{1}{2}$ p. M.—Oak wood, \$4 50, Hickory, \$5 per cord—Clover seed \$6—Am. Orchard, grass do, \$1—Eng. do, do, or Cockfoot do, \$8—Herd do \$3—Sunflower, per bushel \$8—Millet, do \$2—Lucern, 62 cents per lb—Sweet Scented Vernal grass, 150 cents. Trefoil, 50 cents per pound—Ruta Baga, c s—Mangle W tzel, 170 cents per pound—Cabbage seed 2 to 6 dollars, per pound—Cauliflower, 75 to 100 cts, per oz.—spring Turners, 8 per bushel—Peas, 25 to 37 $\frac{1}{2}$ cts per quart—short orange Carrot, 12 $\frac{1}{2}$ cts.—Parsnip, 12 $\frac{1}{2}$ cts—Lettuce, 25 cents—Raddish, 12 $\frac{1}{2}$ to 20 cts—Beet 20 cents—Broccoli, 31 to 100 cts—Cucumber, 37 to 53 cts per oz.—Turnip seed, 50 to 125 cts per lb—Chicory, 75 cts per per pound—Rape, 12 $\frac{1}{2}$ cts do—large Amsterdam Cabbage for cattle, 5 cents per lb—Irish Furz or Wines, \$2 per pound—Bush and Pole Beans, 6 $\frac{1}{2}$ to 7 cents per quart—New York premium Ploughs of sizes from 7 to \$16—Box Churns, 8 to \$9—Drill Machines, 10 to \$11—Bennet's broad cast Machine for sowing Clover, Turnip, and Grass Seeds, \$18—Expanding Cultivators, \$15—Post Augers, 5 to \$9—Flexible Tubes, to relieve cattle when hoven or choked, with gags, the pair \$5—Cann Shellers, 20 to \$25—Turnip Scaups, 50 cents each—large 2 horse Connecticut Ploughs, iron mould boards, \$11—do do wood, 10 $\frac{1}{2}$ —small Ploughs, do \$7 50. Tobacco, Eastern Shore, first 3 to 5 50—Poto-mac, 3 50, to 7—Patuxent, 5 to 7—Wagon, common 5 to 7—fine 8, to 12 50—Yellow, none.

¶ No sales of Virginia Tobacco since last report.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua si bona norint
Agricolae." VINO.

VOL. III.

BALTIMORE, FRIDAY, MAY 18, 1821.

NUM. 8.

AGRICULTURE.

An Address delivered before the Massachusetts Agricultural Society at the Brighton Cattle Show, October 17th, 1820.—By R. Sullivan.

An eminent writer has said that a farmer may be crushed by the weight of his own riches. The meaning of the author is exemplified, in the disproportion of so many of our farms to the capital of the cultivator and to the number of his labourers. In surveying the agricultural districts of our commonwealth, we look in vain for the evidence of that intelligence and enterprise which the world has been willing to ascribe to the character of New England men. Those of our countrymen, who are engaged in other pursuits, appear to have a higher claim to the distinction which these qualities bestow. Not that farmers are a meaner race of men, or that they are incapable of as great efforts as other classes of our citizens. But they have chosen to display the energy of their character in every thing rather than in the appropriate labours of husbandry. And when we are heard to boast of the intelligence of the community of farmers in Massachusetts, we are not to be understood, and we say it with regret, as speaking of their proficiency in their professional art. They appear to shrink with diffidence from the task of a scientific and thorough cultivation.

The disproportionate size of our farms is an hereditary evil. And the errors and prejudices which have accompanied it, for several generations, are deep rooted. The injurious influence of these reaches to the leading and most obvious principles of good husbandry. How many of our farmers, to obtain a greater produce, prefer to extend their imperfect cultivation to a large surface rather than to cultivate a less surface well! In the former case less skill is required, and less perfection in the implements. How few think it important whether their kine be of an improved or of an ordinary breed! With their extensive pastures, it is thought, the dairy may be as cheaply supplied from a greater number of indifferent animals as from a smaller number of a better quality. Then, at the close of the season, the cattle are sometimes left to subsist on the old fog of the ample fields until the snow falls, and occasionally browse in the woods. When the storms of winter have driven the cattle to the fold, the numerous herd are put on a stinted allowance—not always of English hay nor of roots. In some instances the farmer will have accomplished his aim if the cattle survive the winter. Not to go more into detail, it is apparent, that his husbandry is defective in its great principle, it must be defective throughout. His opinions and practice are derived from his ancestors. His own habits have given to them additional force. He may then unthinkingly wonder, that other methods should be thought preferable to those to which he is accustomed—and listen with indifference and distrust, to statements, which demonstratively shew, that his practices are erroneous and against his true interests. He may be an eye witness of the results of a neighbour's better agriculture—notice the richer products of his improved soil—his finer breed of animals—and be led by his curiosity to examine the various implements employed by the scientific cultivator, and go away with the belief, that a plain and prudent farmer has nothing to learn, but should steadily pursue the beaten track of his ancestors. Should his better reason suggest the probable utility of a new experiment, the momentary impulse towards innovation is checked by rising fears. The disadvantages of his present condition, whatever they may be, have become familiar and are easily borne. The humbly of our

species oppressed daily by the miseries of penury, may have the same consolation. There is no species of slavery worse than that which men impose upon themselves in yielding wholly to the guidance of custom and the narrow prejudices which it engenders.

It is a fundamental principle of good and profitable husbandry, that no more land should be laid out for cultivation than the farmer can till in the most skillful and thorough manner. Wherever there is a crowded population, the husbandman may be compelled to seek his subsistence within the limits of a few acres. The resources of art, which he must call to his aid, are alike open to all whether they possess more or less land—and whether they inhabit districts more or less populous—nor are these resources less valuable in the one case than the other; so far as respects the general treatment of the soil, and the great object of increasing its productiveness. If five acres under faithful management can be made to yield a subsistence for a family, shall we be permitted to say that a hundred of equal quality can do no more? If it be said that a refined and thorough cultivation involves an expense which absorbs the profit, let it be remembered, that the skillful farmer often not only obtains a comfortable support from the produce of a few acres, but is enabled from the surplus of his earnings to add progressively to his little territory, and to become opulent. It may be objected, that a result like this cannot be expected without a preparatory acquisition of science—without much care and much reflection in the choice of means. But on what other terms is success to be expected in any other calling or pursuit? It is no answer to say, that the common operations of a rude husbandry are laborious, and that the farmer only adds to his burdens by permitting his attention to be occupied by whatever is new, that comes recommended as an improvement. He will learn how to make the same labour more productive—he will have the benefit of the experience of the most enlightened and wisest practical men, who cannot be supposed to have toiled in vain in their endeavours to improve the art of husbandry—nor to have had any other aim than to ascertain the means of procuring the greatest profit from their labour.

Farmers are over cautious in admitting innovations on their practice, and discover too much of a jealous reluctance to examine the documents by which the utility of these may be fully proved. No one doubts, that all the arts which contribute to the support and comfort of man in civilized life, have had their origin at different periods, and that at first they were not as perfect as we now find them, but that they have advanced step by step, through progressive stages.—Nor will it be questioned that improvements now known to be valuable, have sometimes been long prepared and tendered to the acceptance of mankind before their merit has been admitted. Their authors may have perished with the reputation of visionary men—an ill-merited reputation, as unpropitious to the interests of society, as unjust to the individuals.

Who, looking back on the past, will hesitate to agree, that our posterity, will gather from the same fields five fold more than the present generation? And how is this to be accomplished; by what means? If we look to Europe; to England especially; we find there the necessary means in use. It is to be effected, not so much by an increase of labour, as by a more judicious application of it, with the aid of improved implements. In whatever respects the husbandry of England is preferable to that of our own country—and there can be no doubt it is so in many—some future generation of our people, perhaps wiser than the present, will assuredly adopt these profitable methods of the English farmer. Why then should we now re-

ject them? The reason in favour of receiving them at a future period by our posterity will be no other than may be urged for the adoption of them now—it is—that they are the result of careful and repeated experiment, and that their utility is established.

We are a highly privileged people, in as much as with all the rich resources of a new country, we may avail ourselves of the science and experience of the old world. Our yeomanry are proprietors of estates, which, under skillful management, would entitle them to rank with the wealthy in some parts of Europe. We enjoy a free intercourse with every portion of the world, whence any useful knowledge may be derived—and our husbandmen have not only capacity to judge, but opportunity to gain, whatever any other country can now offer to give variety to our culture, or improvement to our husbandry.

Considerations like these ought to check all unreasonable distrust of what is new. They furnish sufficient reason for keeping the mind open to conviction—and for training it to a habit of liberal inquiry. There is no question here of the truth of abstract speculations. But only how far, what has been found profitable to the inhabitants of other countries by experiment and long use, may be beneficial to us.

A reference to the history of agriculture in the land of our progenitors, will shew, that, as much as the farmers of that country now excel us in the art, at a period so late as that of the first settlement of the English in this country, our common roots and fruits were not cultivated in England—a small portion only of the land had been subjected to tillage—numerous herds and flocks overran the territory—and almost the whole country presented nothing to the view but an alternation of pasture and forest. A baron of the realm, at the period alluded to, enjoyed fewer of the substantial comforts of life than a reputable farmer of the present day. Consider for a moment the advantage, which a knowledge of the potato, and the modern method of cultivating it, gives to the farmer of our times over a peasant in the same class in the reign of Henry the Eighth, of England. The produce of one acre of this root, carefully cultivated, will sustain, for the space of a year, ten persons. It would require but one faithful labourer to manage with proper care ten acres with a crop of the potato. Thus by his labour alone a hundred persons might be supplied with a sufficiency of food for the time mentioned.

If a half century ago it had been said that there remained to be known nothing which could be turned to profitable use in agriculture, there is no one here present that could not bear testimony to the absurdity of the assertion; nor would hesitate to say, that it was presumptuous, and against reason. Would it not be as absurd to speak thus of the future? Science is continually engaged in enriching this art. Commerce is even furnishing new materials for experiment; it not only transports the products of one country to another, for consumption, but for propagation. It not only brings us from abroad vegetable productions before unknown, but the knowledge of their uses, and the methods of their cultivation.

For what, let me ask, are our times more distinguished, than for the zeal and success with which all science is applied to practical uses? The chemist the mineralogist, the botanist and the mathematician are fellow labourers with the practical farmer and the manufacturer. Vain and unprofitable theories no longer engross the attention of men of science. It can no longer be said, as formerly, that an active and feverish imagination is as distinguishing a mark of a philosopher as of a poet. Philosophers are, in our days, business men.

There are in almost all parts of Europe associations of distinguished persons, united not only for the purpose of encouraging the researches and rewarding the useful discoveries of genius, but for ushering such discoveries into the world under the sanction of their patronage, and for inviting and encouraging the public to avail of them. Societies for the same purposes, not inconsiderable in number, exist also in our own country.

Cultivators of the soil may confidently anticipate an enlargement of their resources, not only by the rapid improvement of the art, but by the multiplication of their products. New staples will find their way into New England, as they have done, from time to time, elsewhere. Cotton, the great staple of the south, now worth forty millions a year to the United States, was not a native of the country. The grape, which yields the great staple of France, was not indigenous, nor was the olive in the south of Europe. Massachusetts, within a few years, has acquired an invaluable stock, in the Merino sheep. To those who know their intrinsic worth, it will not be thought presumptuous to say, that they will ere long yield us our most valuable staple. Whether we consider the abundance, the fineness, or the beauty of their fleece, they are, in all these respects, a gain to our country. The history of the prevailing prejudice against the animal, were it not too delicate a subject to touch upon, is too recent not to be generally known. The remembrance of the Merino mania will soon cease to bring up painful associations, and we shall be better disposed to believe, what is demonstrably true, that we are indebted to Spain for a great source of future wealth. After the tulip-mania, or rage for tulips, had subsisted three years in Holland, from 1634, during which, it took entire possession of that sober people the Dutch, and engrossed in a single town a capital of four and a half millions of dollars, it subsided, and left the tulip to be, as it has ever since continued, the favorite flower of the Hollander. And may we not hope that the Merino sheep, possessing so much more substantial merit, will ere long become a universal favorite in Massachusetts?

Discoveries and inventions, the use and benefit of which are familiar, are not always duly valued, because we are not always aware how different would be our condition without them—would we bring distinctly to view, a state of society less improved than that of our own day, and the inconveniences attendant upon a less advanced stage of the useful arts, we should be more inclined to look forward with interest upon every prospect of new acquisitions to our stock of knowledge and means of enjoyment. We have seen how important a rank the modern farmer of England with his skill and resources would have held in the estimation of three centuries. We must not forget that he deserves also to be considered as in advance of the husbandman of our own country. Were it not so, how could he subsist and support the heavy burden, which the peculiar circumstances of his country have imposed upon him? Not less than half his income is absorbed by taxes—the great extension of the manufactures oblige him to pay dear for labour, and the average prices of the provision markets are not so great as those of our own. Under all these disadvantages he maintains his independence. He is enabled to do so by adopting improved labour-saving implements—by forcing the soil to its full capacity of bearing—by assiduous attention to the accumulating of manures—by proper measures to prevent their waste—and by a judicious application of them—by raising root crops, on an extensive scale, for his cattle—and by an admirable system of order, economy, and neatness, in every branch of husbandry.

In no country of Europe, we have said, are the same class of cultivators so amply endowed with lands as the husbandmen of Massachusetts. The burdens of our government are so light, that they are scarcely more felt than the weight of the atmosphere. The four millions of acres in Massachusetts would sustain a population from a million to a million and a half—and just in proportion as our products

increase, there will rise up mouths to consume them.

Were the labours of the cultivators, or the large farms in Massachusetts, confined to such portions of land as their means would enable them to husband in a skilful and faithful manner, there can be no doubt that one third part of the land now employed in tillage would yield as great products as are obtained from the whole. It will be perceived that the farmer may thus increase the value of his farm three fold. The story of a Swiss farmer to the same point, although it may be thought more properly to belong to the pages of the Almanack, than to a discourse on an occasion like the present, I may be allowed to state in substance, as affording a good practical lesson. The person alluded to had portioned in succession three daughters, with a quarter part of his farm to each. As his territory thus diminished, he redoubled his efforts and employed additional art and care in his cultivation, and thus kept up his crops to the same aggregate amount each year, even when there remained to him only a fourth part of the land which he originally possessed.

As an agricultural community, our progress in improvement cannot be great until the science of breeding and the art of keeping cattle is better understood; until we attach a broader signification to the word *manure*—that great alimant of agriculture, extending it so as to embrace a composition of earths and every species of vegetable refuse and animal offal, as well as the litter and dung of the stable—nor until ploughs and other implements are adopted superior to those now commonly used. It has been ascertained by an accurate instrument adapted to the purpose, that there is a difference in ploughs of the same size and weight, in regard to the power required for the draft, amounting to from two to six hundred per cent. It is doubted whether the knowledge of such a difference, or indeed of any, is known generally to our husbandmen or whether it has usually been considered in the purchase of the implement. Every farmer complains of the expense of labour. This discovery will enable him to dispense with half or perhaps two thirds of his team in one of the most laborious operations of the farm. It will not be out of place here to state, that in one of the northern counties of England, it had been the universal practice to plough with six horses, until, on the institution of a periodical ploughing match, the old ploughs were in a short time laid aside, and new ones on an improved construction substituted. It was soon found that two horses could accomplish the same work which with the ploughs before in use, it had required six horses to perform. How important is such a discovery to the farming interest!

(To be continued.)

A New Theory of Agriculture, in which the nature of Soils, Crops and Manures is explained; many prevailing prejudices are exploded. And the application of Bones, Gypsum, Lime, Chalk, &c. is determined on scientific principles, by W. GRISETHWAITE.

CHAPTER I.

Introduction. Origin of Agriculture. Its progress. Necessity of fixed principles. The want of them a great cause of the present imperfect state of Agriculture. On germination.

In the infancy of society, as in the infancy of man, knowledge of every kind is almost entirely and necessarily restricted to particulars. It is after long and repeated observation; after careful and accurate comparisons only, that the mind is led to generalize facts: and to classify, and systematize those general facts, is the highest species of exertion of which the human intellect is capable. By the multiplication and extension of these systems, the progress of civilization may every where be accurately marked; the advance of manners, and the arts being

simultaneous with that of philosophy. And that period of human existence may be pronounced the most perfect, when the speculations, and conclusions of philosophy are carried from the closets of the learned to explain, and improve the practical economy of civil life. The gradations here noticed are made with remarkable slowness. Long intervals elapse before observation is succeeded by philosophical reflection, and a still longer time intervenes before the deductions of philosophy become the guides of mechanical exertion. These truths are no where more strikingly exemplified than in the progress of Agricultural knowledge. At first, supplied by the bounty of nature, man contentedly gathered what was spontaneously produced; he ate of the fruits of the field with the same incurious satisfaction that he drank of the rivers that ran through them. Experience, however, would soon teach him that such supply was precarious; that heaven had furnished him with muscular powers not only calculated, but evidently designed, for habits of industry; that the good things of this life were to be the rewards of exertion: he would discover, that though nature had done much, yet she had left much to do: and instead of finding all her operations succeeded by unchanging results, he would witness vicissitudes which interfered with his comforts, and failures which sometimes might threaten his existence: in fine, she would have seemed to have scattered the means of rescuing those operations from contingency, for the particular purpose of giving him employment in their recollection. In the prosecution of this employment he would feel himself interested in the processes of vegetation—in removing obstructions, and providing auxiliaries; these would stimulate research, which in this, as in all other cases, where principles are first investigated, accident would supply knowledge which reason could not confer—but knowledge so acquired would be extremely limited, it would just reach the boundaries of his wants—an increase of which would impel him to fresh observation, and consequently to fresh knowledge. Thus agriculture originated, and thus it advanced; even at the present day it consists of operations little understood in principle, and processes adopted from no better authority than traditional sanction: tradition that furnishes general precepts where particular instructions are required; that tells what is to be done every where, and on every occasion, which can be done in a few places only, and for singular purposes, with any prospect of success.

What has been thus transmitted to us imperfect, it becomes us to endeavour to complete—and we may derive consolation in the attempt from the consideration, that those operations and processes, so far as they depend on nature, are subject to immutable laws—and to investigate immutable laws, to trace back constant effects to unchanging causes, and to observe the gradual formation of organized matter, are pursuits really delightful because they are rational—interesting because they furnish fresh proofs of intelligent, beneficent design, to enlarge the scheme of piety; and useful, because they afford practical knowledge to improve the condition of man. It is the last consideration that is most

important at the present moment. The immense increase in the population of this country, and the certainty that all other countries are rising rapidly to the same condition, render it necessary that every exertion should be made to improve the productiveness of the soil; to obviate the liability to failure; and, consequently, to make the supply as certain as the demand is constant. This can be effected in no other way than that of conducting the business of agriculture upon fixed principles, for when men, unaided by such a guide, allow the success of the future to depend solely on the experience of the past, such success will be precarious, and disappointment will be frequent. A thousand contingencies may interpose to hamper industry, and defeat hope. These will arise out of the disturbing causes which incidentally accompany every operation of nature. To be secure, the operation must be well understood.

As I have mentioned the immutability of the laws of nature, as an encouragement to promote the investigation of physical phenomena, so it may be necessary to explain, in this place, how far our investigations can extend, and what are the limits beyond which they cannot pass. Every attempt that has hitherto been made to discover first causes, has ended in disappointment—the first springs of action, the *primum mobile* of nature, are inscrutable to human sense; and imagination speculates in vain when unassisted by observation—happily for man his well being here is independent of such knowledge. It is sufficient for him to know that the materials of this globe, which he inhabits, will act upon each other in a particular manner under particular circumstances: the manner and the circumstances are the considerations with which it is more immediately important for him to become acquainted.

In tracing the progress of vegetation from the germination of the seed to the expansion of the flower, and in examining the several substances formed during the period of growth, it will not be necessary to consider, whether vitality possesses laws peculiar to itself, or modifies those laws to which inert matter is subject: these are questions that may afford much interest to the physiologist, but are not essential to the practical farmer. To know that particular plants do generate particular substances, and that the materials from which those substances are to be generated, must be presented to the plant in a particular manner, is all that is required for the business of agriculture.

Some writers on this subject have contended for the inutility of knowing how manures promote the growth of vegetables, as if the knowledge of an operation could contribute nothing to the successful management of it; and yet in every other art such a knowledge is ardently desired, and sedulously cultivated. In agriculture they are contented to admit that manures assist vegetation, and neither trouble themselves to ascertain what they understand by vegetables, or manures. The vulgar notion is, that every kind of refuse matter is manure, and that the growth of all vegetables is promoted by it. In the course of this essay I shall endeavour to prove the absurdity of such a notion, and point

out the impediments it has thrown in the way of agricultural improvement.

Having shown that agriculture originated in the necessity of man, that its progress has been indebted to the same cause as its origin, and that its present state is highly imperfect, I shall proceed to consider the subject of vegetation from the incipient changes which take place in the seed during germination, to the completion of fructification, and the reproduction of a new seed; in the course of which consideration much important variety of matter will become developed, that will at once be interesting to the speculative enquirer, and useful to the operative agriculturist.

A seed, if kept in a situation free from moisture will undergo no change whatever—perfectly dry air being incapable of producing any action among its constituents, or of forming any combination with them. Moisture is not only one of the great media through which chemical changes are effected, but is also that which facilitates, and perhaps, is equally indispensable in the operation of vegetation. There are also recorded many facts which seem to justify the conclusion, that a seed exposed to moisture, and secluded from air, will remain many years, and probably generations, without alteration, they having been found in situations in the earth where it is almost certain they must have lain for several centuries. Seeds which have been discovered under these circumstances have lost nothing of their original properties, nor are they less disposed to germination than other seeds, when placed in situations favourable to that process. This is a singular fact, and becomes more surprising when it is stated, that seeds so buried in the earth, are not entirely secluded from air, nor deficient in that degree of temperature necessary for germination. What the circumstances are that resist it are imperfectly known, and have never yet, that I remember, been satisfactorily assigned by any writer on the subject. *Thompson* imagines the cause to be referable to the absence of air, but this is rendered improbable since the interstices between the particles of earth, at any depth below its surface must necessarily be filled either with air or water. At a certain depth the diminution of temperature would be fully adequate to explain the difficulty. Perhaps the compression of the seed by the weight of incumbent earth, may also be one cause, as we know from some experiments of *Sir James Hall*, that such compression is capable of preventing the extrication of an elastic gas, even when its elasticity is assisted by considerable heat: and the cause capable of preventing the extrication of a gas under such circumstances, may also prevent its formation, and if no gas be formed, no germination can take place. These facts, and observations, may furnish the agriculturist with much useful, practical information.—They suggest the propriety of examining the nature of the interior of those hills which are sometimes required to be levelled, in order to discover whether they contain the unimpaired seeds of any plants, whose cultivation it is not desirable to promote: they also serve to explain the exhaustless production of particular kinds of weeds in certain lands, and point out the most

rational plan for preserving seeds, and those roots which vegetate like seeds.

We have here seen what circumstances may prevent germination, and are thereby indirectly led to a knowledge of those which will promote it.

A seed exposed to moisture, atmospheric air, or any air containing uncombined oxygen gas, or oxygen in a state of weak union, and a temperature above thirty-two of Fahrenheit, undergoes a series of changes which appear easily explicable on chemical principles, and which at the same time will explain the uses of a soil to germination. If a soil be too retentive of moisture, or be so situated as to receive too much of it, it will acquire heat with remarkable slowness, and the seeds committed to it will be almost entirely excluded from the air, and, consequently, will vegetate either with great feebleness, or that process will be completely interrupted, and a spontaneous decomposition of the seed will ensue. If too dry, germination will be irregular. But if they be placed in a well tempered soil the process will proceed with vigour. Hence it appears, that it is the combined influence of moisture, air, and heat, independent of soil, that occasions the first change in a seed.

If a seed which has been immersed for some hours in water, be surrounded by a definite quantity of confined air, it will soon be discovered that the seed has effected an alteration in such air, a portion of its oxygen having been absorbed, and united to a portion of the carbon of the seed, and a volume of carbonic acid gas emitted exactly equal in bulk to the oxygen gas consumed. This process has a very striking analogy with that of combustion, inasmuch as a combustible body is hereby changed into a product of combustion, by being saturated with oxygen gas, during which saturation, a considerable quantity of heat is extricated: the extrication of the heat may be easily ascertained, if, instead of experimenting on a few seeds, a thermometer be introduced into a heap of barley when placed on the couch of a malt house, during the process of germination.

This germination of heat, and loss of carbon, is accompanied by very important changes in the seed itself. In the cerealia, starch is the substance which composes the principal part of the seeds, and starch, when deprived of a small proportion of its carbon, is converted into a substance resembling sugar in many of its properties. Indeed it seems to consist of sugar combined with a mucilaginous matter. This change is necessary for the purposes of germination, for starch, being insoluble in water, furnishes no nutriment to aid the development of the radicle, and plumula of the seed, until it pass into the state of sugar.

It is probable that nature has provided the cotyledons of plants with starch, rather than sugar, from its being less liable to spontaneous alteration. Solubility is an essential property of all substances that assist vegetation, and is not confined to germination only, but is equally indispensable in every after-stage of vegetable life—a truth of great practical importance, and one that I shall have occasion to allude to more fully hereafter, when treating on manures.

The changes that the seed is here stated to undergo, are not only such as chemistry explains, but also such as chemistry would lead us to expect. The constituents of starch, and the proportion of them are as follows:

Carbon	43.55
Oxygen	49.68
Hydrogen	6.77

whilst those of sugar are

Carbon	42.47
Oxygen	50.63
Hydrogen	6.9

hence it is obvious, that the abstraction of a small portion of the carbon from the former will leave a substance not only composed of the same constituents, but in nearly the same proportions as they exist in the latter; and what is effected here by germination, may be produced by other processes in the laboratory of the chemist, as was first proved by *Kirchhoff*, and has since been repeatedly confirmed by numerous experimentalists. The small excess of oxygen and hydrogen contained in the sugar may be readily explained, according to the commonly received doctrine of chemists, namely, that water is a body composed of those two constituents, for the proportion of those excesses is almost precisely such as to form water; and, consequently, the combination of a quantity of water with the starch equal to both, would furnish, agreeably to that theory, the elementary deficiencies.

I have here stated, that the constituents of the seed have undergone such a change in their proportions as to produce a soluble out of an insoluble compound, and that this change has been effected, principally, by the agency of oxygen gas, through the medium of water. That the result is to be ascribed to the oxygen gas, is demonstrable by a very simple, and yet decisive experiment. If seeds, instead of being moistened with common water, be immersed for a short time in water impregnated with oxymuriatic acid gas, such seeds will germinate much faster than before; and to this practice recourse is sometimes had in order to make delicate, exotic seeds germinate, which refuse to do so in this climate under common circumstances. The reason of this is obvious; oxygen gas is presented to the seed in a condition better fitted for combining with its carbon than that which it possesses in atmospherical air.

As moisture, oxygen gas, and heat are favorable to germination, so light is unfavorable to it. This arises from certain rays which form part of solar light; those rays have been called, from the property they possess, deoxydizing, and, consequently, as the name imports, they have a tendency to prevent the combination of oxygen with other substances, and, therefore must resist that disposition to union, which is necessary in germination. Hence the reason why seeds require to be covered by the soil, and why the process of malting is conducted most rapidly in the dark; and hence, probably, the reason why the sun's ray extinguishes fire.

Although light acts unfavourably to the germination of the seed, yet, when the plant is formed, it becomes a powerful agent in assisting its growth, so much so, that without light it is reasonable to infer, that not a single tree

could arrive at maturity; and without light flowers would be destitute of colorific beauty, their grateful aroma would be lost, and their inflammability destroyed. Hitherto I have considered the progress of germination no farther than the changes which are produced in the constituents of the seed, but, if we carry our examination a little further, we shall see that the immediate consequence of such change, is the extension of the plumula and radicle, the former of which is designed to become the stamen of the plant; the pillar to sustain its branches, leaves and organs of fructification; the latter to derive nourishment for the plant, from substances contained in the soil. Here chemistry ceases to afford explanation. Here philosophy is bewildered, and is constrained to acknowledge its researches unsatisfactory. Why the presence of a moderately warm solution of sugar within a seed, should occasion two portions of matter, hitherto apparently inert, to prepare themselves to perform such important, and unexpected offices, can be explained by no principle with which we are at present acquainted; and the wonder becomes still greater when we find the chambers in which the food has been stored, converted into two leaves, the plumula acquiring colour, and sending out shoots; and finally producing flowers, and fruits; the most exquisite, and useful objects of the creation.

To explain the manner in which organized matter is generated, is one of the most difficult, and interesting inquiries of philosophy. When glands are once formed in the human system, and secreting vessels analogous to them in vegetables, we are greatly assisted in forming our notions concerning the production of particular fluids, and solids; and the evolution of water constituting growth; but the formation of those glands, and vessels, is scarcely explicable, except on the hypothesis, that other glands, and vessels have previously existed to produce them; and thus we are merely carried back in our researches, without advancing one step nearer to an elucidation of the difficulty.

Although we are not in possession of any means of knowing by what processes organization is effected, yet, by diligent observation, we may discover the order in which particular parts are formed, and become acquainted with the substances for whose production they appear to have been specifically designed. All knowledge is useful, and this is particularly so, for, by ascertaining the time when any substance begins to be evolved, we learn the moment that assisting means should be employed to aid its evolution. This may be exemplified in wheat. During its growth there appears to be formed nothing but vegetable matter, or matter composed of oxygen, hydrogen, and carbon, mixed with, perhaps, a minute portion of carbonate of lime: but, when the grain is to be formed, there is taken up a considerable quantity of either pure nitrogen, or some substance containing that element, and also a notable portion of phosphate of lime. It is rendered highly probable that the nitrogen is taken up in some soluble animal matter, most of which have the remarkable, and anomalous property of dissolving phosphate of lime; thus ministering to the

but not only by its own elements, but, also, as the vehicle of another useful, and, perhaps, necessary constituent—a constituent which could not have been furnished by any other known medium.

The above remarks are not confined to wheat; almost every plant, at the time of fructification, secretes substances, and forms compounds peculiar to that stage of vegetation.—Whether new organs be framed for that especial purpose has not been determined, for, I believe, it has never been considered. What a field for speculation does this open! it is an untrodden path in the wide, and delightful regions of vegetable physiology. And, although the laws conspiring to evolve these secreting organs, may for ever remain inscrutable to human research, yet to know that such secretions do take place, and that such laws do exist, will furnish the practical Agriculturist with much useful information. It will teach him that the same manure which formed the stamen and leaves of a plant, may not be able to form the seeds, and, consequently, will direct him to provide it with such substances as are calculated for that purpose. On this point I shall have occasion to dwell in the sequel of this Essay.

(To be Continued.)

OF WINTER FALLOWING.

Altamont, July 1, 1816.

DEAR SIR—I beg leave to direct the attention of the Society, to an object I have long thought of the first importance, and my observations during the last two years have so strongly convinced me of its great utility on our ridge farms, which are generally stiff clay lands, that I flatter myself the Society may think the subject worthy of their consideration. It is a winter fallow.

The modern improvements in husbandry have, I believe, entirely superseded the old laborious and expensive mode of cleaning lands by summer fallow. Fallow crops have been introduced which have the desired effect, and at the same time preserve the soils from losing their finer and more subtle particles by evaporation, while they yield some return to the farmer for his labor. Still however, the principal object of a fallow crop is cleaning foul land, and if great judgment and care is not exercised in the selection and culture of the crop, the soil will be as much exhausted as by the old naked fallows. But the winter fallow has a higher object; its direct tendency is the actual improvement of the soil, by exposing it to the action of the winter rains and frosts, which perhaps more minutely enter, separate, and pulverize our stiff clays, than any other known agent. The action of frost however, is generally limited to an inch or two below the surface, but by throwing our stiff clay fields into five or six feet ridges, high on the crown, and the furrows made very deep, we admit this friendly agent to as great a depth as is necessary for most of our crops. In this stage of the fallow, if manure of any kind can be procured, there is no mode of application more economical, or more immediately useful, than scattering it in the bottom of the deep furrows. In March the ridges are to be split down and gathered over the manure. Thus, every particle of the soil

will be moved, and the frost, the manure, and the plough will have totally destroyed that compact adhesion which is the unfortunate characteristic of our clay soils. Corn may then be planted from three to five or six feet distance on the ridges, according to the quantity of manure or quality of the land, with the greatest probability of a successful crop.—From my own experience, I can affirm, that stiff clay worn soils have produced three times as much as they did, without the winter fallow and manure, and nearly twice as much, with winter fallow, and *without* manure, as they did without either.

I may be told, however, that manure alone, without the fallow, would be sufficient to produce this difference, and the labor of one ploughing be therefore saved; but a strong proof of the necessity of the fallow fell under my observation a week or two ago; so strong indeed as to have influenced my decision, to address this communication to you.

My neighbor had ridged up a field in *March last*, the ridges twelve feet apart, manure was spread in the furrows, and the ridges gathered over the manure. I was convinced there was manure enough, as the roots of some stalks of corn, that had been thinned out, brought up large balls of manure, as they were pulled up. This field was planted the third and fourth days of April, and the corn appeared to be generally about three feet high, and looked indeed well, but not of that flourishing vigorous growth, I had expected from its culture and the great width of the rows. A stiff field of mine, had been winter fallowed in the mode I have mentioned, the last of *November*. The manure was hauled out and spread in the furrows, the middle of March, the ridges were reversed, and corn was planted four feet apart, the last day of March, three or four days only sooner than my neighbor's; and it did appear to his manager and myself, that my corn was twice as high, of a deeper color, and generally more vigorous and luxuriant; yet their treatment was similar; their culture equal; his land naturally better than mine, his rows twice the width, but his field laid hard and compact, under the frost and snow of the last winter, being only ridged in March, while mine was ridged in November last, and exposed during a hard winter to the full influence of the frost and snow. This case appears to me decisive of the great advantage of a winter fallow.

A proof of the utility of this operation is, that for several months after forming the new ridge in the spring, the soil of it continues to be mellow and loose, affording fine pasturage for the roots of plants, and although a plough is never to run across the ridges, so as to displace the manure or destroy the young roots; yet they are so open and mellow, that your working stick may easily be pushed down to the bottom of the winter furrow. It is self-evident that this must be greatly advantageous, and consequently the plant arrives sooner at perfection, as its growth is never retarded by the struggles of the young roots to penetrate a stiff soil. I remark last summer, that the fodder and corn were taken ten days or a fortnight sooner from the

part of the field that had been winter-fallowed and manured than from other corn planted at the same time, and one acre of the fodder of the former was worth that of any two acres which had not been so treated.

Among the numerous incidental advantages of this practice may be also stated, that of destroying most of the weeds by turning them up to be killed by the frost, and their decay assists to enrich the soil. I should think it strange indeed if our fields were not clean, when the weeds are so incessantly attacked by the frosts, of the winter and the ploughings of the summer, in this mode of culture.

But again, I may be told that even gold may be bought too dear, and that this operation in husbandry, though beneficial, will not pay by its surplus product for the surplus labour it requires. As this is an objection which may at first appear reasonable, and which, if well founded, would of course render the practice of winter fallowing ineligible, I will very briefly examine it.

I presume that I am correct in stating the value of the labor of a man with his horse and plough at one dollar a day. Let us suppose we have a field of stiff red clay of ten acres, and that by industry and judgment, it will produce in the common way, ten bushels to the acre.—The only difference in the labour and expense of culture of the two modes, is the ridging up in the beginning of winter in the practice of winter fallowing. For the reversing of the ridges in spring, is not more expensive than the common mode of preparing a field properly for planting. I know that an acre a day is light work for one plough, the expense therefore of ridging up the field is ten dollars, and I really believe all other expense and trouble to be equal in both modes. The produce of the field in the common mode is one hundred bushels, and I can hardly prevail on myself to state the produce of the winter fallowed field so low as fifteen bushels per acre; I feel well assured from one years experience that it is double that of the common mode, but even at one half more, its produce is one hundred and fifty bushels, which additional fifty bushels you get for ten dollars. To this is to be added, that your fodder in quality and quantity is superior in the same proportion, and if you have peas in the step on the ridge, their produce also exceeds that of the common mode; in a word, your crop is one half better in all respects. It will be remembered too, that your winter fallowing can be done in a season of leisure, and that your soil is improved by pulverization and the destruction of weeds.

If these are facts, sir, which I have stated, and I have myself no doubt of their reality, they are worthy of consideration; and with a sincere hope that they may be beneficial to those of my brother farmers, who have stiff clay soils.

I remain very respectfully,

Your obedient humble servant,

THOS. PINCKNEY, JR.

J. T. Lewis, Esq. *Corres. Sec'y. of the Pendleton Farmers Society, South Carolina.*

CULTURE, PRODUCE AND EXCELLENCE OF

MINGEL-WURTZEL.

TO THE COMMITTEE OF THE MASSACHUSETTS AGRICULTURAL SOCIETY, ON AGRICULTURAL EXPERIMENTS.

Jamaica Plain, 20th Nov. 1820.

GENTLEMEN,

Having the last year addressed a note to the Secretary of the Society on the subject of the culture of *Mangel Wurtzel*, of which vegetable I had just been raising a small patch—and from the high opinion I therein expressed of its value, I thought it my duty to attempt its cultivation this year on a larger scale, having procured fresh seed from Holland. I now beg leave to give you the result.

The land used for the purpose had been for four years chiefly cultivated with carrots—is a deep light loam on a dry gravel bottom,—and on the same spot are upwards of fifty apple and pear trees, of 10 to 15 years old. This year about 24 ox-cart loads of compost manure were used; on part of the land it was spread and ploughed in, and on part it was put in the furrow under the seed—the whole was thrown into ridges with the double mould board plough, about two and a half feet apart, then flatted a little, and the seed put in, with the fingers, at six inches apart. They were afterwards thinned to a single plant, and after they had attained considerable size, every other one was taken up and used as food for my hogs, being boiled. They were hilled with the double mould board plough, and hoed alternately three or four times during the season.

I am well convinced the whole labour on them was fully paid by the trimmings and thinnings, which my people all estimated, including those pulled within six weeks of harvesting, at not less than one hundred and fifty bushels of roots.

In the month of July the season was so dry, I feared I should almost lose my crop by drought. I think a soil naturally more moist would have been better for them. I am, however, well satisfied with the result. On the 22th of October we commenced taking them up, first cutting the tops and carting them off to the oxen and cows, the roots were then pulled, and on the 14th the whole were housed or pitted at an expense of less than ten days work on 504 baskets—24 of which I myself weighed, the average of which was 75 21-26 lb. net—and calculating, by the societies rule of 36 lb. per bushel the produce *then gathered* was 662 bushels from 1 acre and 2 rods, as appears by the surveyor's certificate, herewith handed. There being no hay-scales within three miles and not wishing to market any of these roots, I thought the trouble too much to send them, and presumed the Committee would be satisfied with the weight as above expressed.

It must be observed that allowing 10 days labour in harvesting, each man must have got in 63 bushels in one day's work, four times as much as that of harvesting potatoes. All sorts of stock are fond of them, much more so than of *Ruta Baga*, and they are I think, a more certain crop, having fewer enemies to encounter. They are not however, so easy to keep through the winter. I last year kept (in a pit) in the field those intended for seed, which did remarkably well,—and this year I have pitted 200 bushels, by digging a trench 33 feet wide and about 1 foot deep, putting a layer of straw on the bottom and piling them about 3 feet high, and covering them with straw five or six inches deep, and then covered 6 or 8 inches with the soil taken from the trench—observing not to cover them too thick, till the weather becomes quite cold.

On three square rods of the above ground an average of 1800 bushels per acre was produced. The seed was planted the 28th of April.

I am, very respectfully, yours,

JOHN PRINCE.

N. B. I have this fall procured a double mould board plough and horse-boe with circular cutters—the mould board and hoes are expanding, and can be worked in rows of any width from 18 inches to 3 feet apart, with this implement, in a free easy soil, I think the *hand hoe* will not be much required.

Roxbury, Nov. 20th 1820.

I Mather W.thington, of Dorchester, a sworn surveyor, having been requested therefor by John Prince, Esq. of said Roxbury, hereby certify, that I have this day surveyed a piece of ground on which, as had been stated by him, a crop of Mangel Wurtzel had recently been taken, and find it to measure one acre and two rods. I also found on the said ground forty-nine pear and apple trees, from ten to twenty feet in height—also within one foot, on the eastern border, eighteen other trees, of apple and pear, of like height.

MATHER W.thington, Surveyor.

Roxbury, Nov. 28th 1820.

We the subscribers hereby certify and declare, that we have worked on the farm of John Prince, Esq. during the whole of the past summer, that we have assisted in cultivating a piece of ground with Mangel Wurtzel, that we have seen the statement made by Mr. Prince of the culture thereof and the produce, and that so far as relates to the labour of this year, the manure, the produce and weight of the same, we can attest to the accuracy thereof.

EPHRAIM DOWNES.

LEONARD NEWTON.

Norfolk, ss. Roxbury Nov. 28th, 1820. Then the above named Ephraim and Leonard Newton appeared, and solemnly swore to the truth of the above by them signed. Before me,

JOHN PARKER, Justice of the Peace.

For the American Farmer.

Agricultural Schools.

Should they not be established by the several States?

SIR,

Through the medium of the *Intelligencer*, I have for some time been much interested in the progress of the Maryland Agricultural Society, and as I am desirous of becoming more intimately acquainted with the proceedings of your Society by reading the *American Farmer*, I wish you to send it to me. The immediate, and I hope zealous, supporters of your valuable paper will doubtless appreciate the undertaking of a reform in agriculture as a patriotic duty, as well as a noble and most agreeable amusement. It is encouraging to see a spirit increasing and pervading our communities exciting our fellow citizens who have been formerly engaged in careless and excessive cultivation, and in the almost exclusive attention to some one staple—now to turn their attention to many valuable crops and to the improvement of their lands and stock generally. The opportunities afforded by the wealthy and public spirited gentlemen about Baltimore to introduce foreign stock, seed, and improved implements of husbandry, I trust will be prosecuted with a zeal and steadiness commensurate with the great objects which they have in view; and when the beneficial effects of such enterprises shall be felt and acknowledged particularly by the agricultural community, their authors will be amply remunerated for their advances, and above all, enjoy the sentiment of having procured for their country advantages so substantial. And you Sir, feeling a just national pride in being the organ of their usefulness, will be supported I sincerely hope, in a devoted attention to these great objects not merely by your own zeal, but by the substantial co-operation of their advocates, who indeed ought to feel themselves under obligations to any fellow citizen, who will use every exertion in his power, to collect and disseminate the most useful theoretic and practical information in agricultural science. I have been a farmer for these 16 years and have but lately discovered my ignorance of the business, an evident proof of which is, that my soil is but little better now than when I first commenced; but still I do not know that I am a much worse farmer than my neighbours; nor do I think that farmers in general can adduce in proof of their knowledge of the profession, any considerable improvement of their soil during the past 10, 15 or 20 years. Under present circumstances it is a difficult task to impress on the minds of many agriculturists the necessary connection of theory with practical agriculture, and the consequent advantages of scientific aid.

I would therefore most respectfully inquire of those who are better qualified to judge than myself whether the establishment of institutions, for the purpose of teaching the art of Agriculture scientifically as well as practically, would not be of great advantage to the community. I should indeed be pleased if some of your able correspondents, who I perceive are scattered far and wide over our happy country, would inquire into the expediency of our state Legislatures establishing schools in each state, to teach the Philosophy united with the practices of Agriculture—I mean in short, that several hundred acres of land should be placed under the superintendence of a well informed practical farmer; who would lead our youth into the fields to learn and to perform every variety of labour that could be useful to them in their future profession; and that on each of these farms there should also be a professor to lecture upon proper subjects, and attend to the completion of the best English education.

Can it be doubted that if each subdivision of a state could be furnished with at least one farmer who perfectly understood his employment, and who would of course be looked upon as a guide and pattern, that its agriculture would in a short time be much improved? would it not save many beautiful estates from destruction, and many amiable families from want, or the necessity of removing to a wilderness country? If it should be replied that diligence, good ploughing, and generous manuring, will insure success in agriculture; let it be remarked that a curiosity so natural to the human mind to develop the most rational theories would be a most powerful stimulus, to industry, enterprise, and experiment. To illustrate the importance of science to the art of husbandry I will speak of a farmer, of this county whose education has enabled him not only to enjoy all the advantages common to his neighbours, but in the use of them to be governed by a chymical knowledge of his soils, and manures, and a mathematical knowledge of the implements, and force which he employs. Order being one of the first Laws of Nature, it is his anxious study to carry into harmonious practice those rules which have been instituted for the benefit, and placed within the reach of Man. His leisure hours have been employed in reading, examining, calculating, reflecting and deliberating upon the most advantageous modes of performing even the minutia of his business. From the theory and experience of others, he is seen to adopt whatever may be justly applicable to his own situation. And he is ever ready to give you a satisfactory reason for any part of his practice. He would not exceed one seventh of his cleared land exclusive of his meadows, in corn cultivation, nor put more than two sevenths in small grain; for the rest, he thinks, should be reposing under grass, fattening fine cattle, or yielding immense burdens of hay, soon to be returned with profit to the soil; I believe that I am correct when I state that he is in the habit of making from 80 to 140 tons of the best clover and timothy hay, annually, in addition to his other crops; although his farm contains but 250 to 350 acres of cleared land, of which he retains large pastures for his stock.

In his Domestic Animals, he is careful to unite the advantages of health, size and profit. And upon no occasion does he ever forget to increase the manure bank, which he justly considers the fundamental source of agricultural gain.

It would, however, be too tedious to go through an enumeration of the many comforts, conveniences and advantages which result from the application of principles by his talents in the art of husbandry. Suffice it to say, that, he has accumulated wealth whilst his soil has been rapidly improved, and that he has accomplished these objects with much less labour, trouble and capital than usual; considerations truly worthy of the attention of every Farmer. I have snatched a few moments from the plough, to give you these desultory remarks, and if they should have the effect of exciting further inquiry on the subject of which they chiefly treat, I shall not lament my having accepted your invitation to the plainest farmers to contribute their mite to the cause of agriculture.

Washington, the best of patriots, the wisest of Legislators, earnestly recommended, during the last session that he ever met our Congress, the establishment of "a National Institution which should grow up under the patronage of the public and be devoted to the improvement of Agriculture." On this subject he also kept up a correspondence with the most scientific men in Europe. We revere his virtues and shall we not also profit by his wise suggestions?

Respectfully yours,

RICHARD K. MEADE.

Frederick County, (Va.) April 14, 1821.

For the American Farmer.

SOILS,

Should be improved by sowing various and many GRASSES, and pasturing SHEEP.

Various modes have been suggested to improve the soil, and men may be found who have spent much time and vast sums of money, to little purpose, in trying to enrich their lands by injudicious means; and although the use of clover and plaster are now generally allowed to benefit the soil more easily than any other mode of Farming, at present in use in the United States, and although I by no means intend to disapprove of this mode of improvement, yet, I am inclined to think that it will not always answer the purpose so fully as it now does:—being convinced, as I am that almost all kinds of land will tire of red clover after a few repetitions, and will not produce a sufficient quantity of it to answer our purposes, unless a considerable period of time intervenes between the crops. This I well know is the case in England, and from every observation which I have been able to make during a residence of five years in the United States, a number of good farmers are here now contending with the same difficulties, who attribute them to unfavorable seasons, and the like. I therefore wish to call the attention of your readers to the subject, and should the opinion now stated be thought correct, I would suggest that similar means be used to improve the soil, by the American Farmer, to those in regular use in England; which have been found to answer there remarkably well on almost all kinds of land, namely, to occasionally sow other grasses as substitutes for red clover, such as Pacey Grass, rough stalked meadow Grass, meadow Cat's-tail and white clover, all of which I now have growing luxuriantly upon a soil remarkably dry and formerly barren. Other grasses might also be used. I think to advantage, such as Burnet, Cinquefoil, Trefoil, Parsley, Yarrow, and several others; these various grasses should all be mixed together, and sown very thick on the soil, with fall grain in August or September, and the produce be regularly stocked with a large flock of sheep for three years, and then the land might be ploughed for culture, and afterwards put into red clover beneficially. A large flock of sheep might by these means be kept in any of the southern States, where the farms are large, and where corn is raised in large quantities the sheep would winter on the stalks and tops; or if a still house could be had to furnish the sheep with pot-ale in winter, they would do well with that and straw, and make much good manure, and pay more money when properly managed

than any other stock that could be put on a farm. And should any gentleman of large landed property, be inclined to try this mode of grazing, the writer of this letter would have great pleasure to become acquainted with him, as he has kept a number of sheep for two years in this way, and intends shortly to settle either in some healthy place in Virginia, or near Washington city, with a view to pursue this kind of employment; for he wishes to have no other care than to take charge of a still-house and a large flock of sheep. The stock that he will take with him are of the Dishley breed, from a ram imported from England only three years since.

ALBION.

Chambersburg, Pa. 10th May, 1821.

For the American Farmer.

MARL.

SIR,

I beg leave to hazard an opinion that some parts of Anne Arundel County, contain an abundance of *Shell Marl*, which if sought for judiciously along the creeks and rivers making into the Chesapeake, might be obtained in vast quantities, and prove to be as valuable a manure as that found in Talbot county, on the Eastern Shore of Maryland.

If the enterprising gentlemen who have been making the most laudable researches in the neighbourhood of the Rising-Sun Tavern, on the post road leading from Baltimore to Annapolis, after that truly useful and valuable article among the comforts of life, *Stone-Coal*, would only use their boring machine for the benefit of the farmer a little lower down the road towards the farm belonging to Brice Worthington, Esquire, formerly Col. Maynadier's, and along the vallies on the east side of the road running to the Severn River, I believe that large quantities of marl would be found. This supposition of mine is warranted and strengthened by streaks of white, blue and dark brown clay, intermixed with a great variety of petrifications of different substances, but especially of the exuvie of marine shells and by the appearance of some sand rocks, coloured with the oxide of iron, where the road is much washed and worn several feet below the surface, actually set with quantities of decayed and petrified shells.—The underpinning of many of the houses along this road is formed of red stone, completely imbedded with various kinds of shells, having no resemblance to those now to be collected along our bay shore. It has been but a very few years, since shell Marl was discovered and saved for Agricultural purposes, in some parts of New-Jersey, with great success. Other kinds of Marl will no doubt be found. I am sure that Marl will be found within 12 miles of Annapolis, and possibly all along our salt water courses by digging for it, particularly between the Patapsco and Severn Rivers. The sandy land, of this truly neglected district of Anne Arundel County, certainly requires some assistance; and no substance in my opinion would be more useful in reclaiming it, than Marl, which would bring about a complete alteration in the texture and disposition of the soil, by binding and restoring its fertilizing virtues.

But if Marl is not found conveniently, I would advise the farmers to take portions of all the different sorts of clay, and with each of these manure a piece of ground, if only ten feet square, to ascertain which variety is best calculated to improve their grounds. I mean their *Sandy Soils*, and if the experiment answers well, then to cart it on them in the same quantity as they would manure.

In corroboration of what I have noticed in travelling along the road within a few days, I have collected and send you with this communication, some specimens; which shew certain indications of the prospect of finding Marl on the Western shore of Maryland. I have no doubt but the consolidation of the several materials, such as you will discover on an examination of the specimens took place at the time of the deluge. The rocks from which they were taken are to be found, where the old road passes over one of the highest hills, between the Black Horse and Rising Sun Taverns. The appearance of these rocks is curious and deserving of notice in a philosophical point of view.

Your's Respectfully, R.

Anne Arundel County. 8th May, 1821.

For the American Farmer.

RAILWAYS, INCLINED PLANES, &c.

SIR—"Ecce iterum Crispinus."—I am before you again on the subject of Roads and Railways, and have to beg your attention to the following extract from a publication well deserving notice, entitled "*Rural Economy*" by S. W. Johnson, of New-Brunswick, (N. J.)

I am sir, yours, &c.

A CAMDONIAN.

South Carolina, April 1st, 1821.

Iron Roads, or Railways and inclined Planes.

"Iron Roads, or Railways are used with the greatest success in many places; they nearly answer the purpose of canals and are frequently called Dry Canals. As a particular description of one at Alloa in Scotland is given, it will be here copied.

The sleepers are 18 inches broad, and over which a rail of four inches square is pinned down to them by oak pins—over this another of the same dimensions is laid; care being taken to cross the joints of the lower one, the whole is well beaten up in good clay; on the top of the uppermost rail, is a bar of maleable iron of one inch and a half in breadth, and upwards of five eighths of an inch in thickness, upon which the wheels run. A wagon carries a ton and a half of coals, besides nearly three tons of carriage." "Cast iron wheels would be a great saving. There is a real road of this kind near Manchester, the expense of which amounted to only 1332 dollars per mile; on this road a single horse will draw seven wagons, each loaded with seven hundred weight of marl.

"Mr. Holt of Liverpool, observes these roads should be double, or two distinct roads, laid at a small distance from each other, with intersecting branches, so as to admit carriages to pass different ways, and pass each other at pleasure."

Mr. J. then proposes objections that may be made to the plan; and, obviates them. He well observes that,

"Roads and rivers are the veins and arteries of Agriculture and Commerce; through these the blood flows that keep both alive, and shews a country in health and prosperity; and when these are clogged, agriculture is laborious and unproductive; manufactories are reared with difficulty from domestic infantine weakness into national importance; commerce moves heavily along and an appearance of apathy is the leading feature of the community.

However, it may be presumed, under the advice of their Engineer, Hamilton Fulton, Esq. the North Carolina Board of Works have ordered some attention to be paid to the positive and comparative advantages of the Railway system; and I trust the result will be such as to ensure its travelling farther southward.

For the American Farmer.

CULTURE OF CANTELOPES.

SIR,

Baltimore County.

On the first day of May, plant some corn, and when you see that up, plant your cantelopes. It is very material to hit the right time; if too soon, your plants will come up and be eaten by bugs, who claim all plants that do not grow from their birth.—choose a piece of ground new and clear of trees and shrubbery—plough it well, make trenches one foot deep, 10 feet apart—fill the trenches level full of good manure; cow, horse, or hog. It is not necessary that it should be very old, or very nice—then rake up a ridge of fine earth, six inches high and two feet broad, and plant the seed, one or two every four inches, in the centre over the dung. If you have no fine, rich earth for this purpose, I advise you to burn a parcel of corn stalks, and litter on the ridge. When the ground bakes, plough between the ridges, and repeat it till the cantelopes are as big as English walnuts. To do this, it is necessary to keep the vines on the ridges—they should never be turned over—they should be pruned at the first runner. When they have received their last ploughing, which is all essential, then encourage them to run over the ploughed ground. Insects will thin your vines for you, but if they do not, one vine may stand every three feet. When ripe, they will look a little bilious and may be indented with the finger; they are then to be put into a hearth from 12 to 24 hours to get fully ripe—most people understand the rest very well. You will see by the fruit from the seed which I send you, if you are successful, how erroneous the idea is of their degenerating. I have had some of these seed 15 years, or more; and the others have been that long in the country.

J. S. Skinner, Esq.

S. V. S.

TO THE EDITOR OF THE AMERICAN FARMER.

GREAT CROP OF CORN.Talbot County, Maryland, }
APRIL, 1821.

SIR,—In your paper No. 1, volume 3, you have stated that a Mr. Rose, of Pennsylvania, last year made of Indian corn, at the rate of 136 bushels per acre. I nearly equalled it the same year, having made from one acre, 131 bushels,

7 gallons and 1 quart of shelled corn, good and sound—in barrels, I made 22½. The corn was planted about the 15th of May, and gathered in the first of December last, after the ground was sown in wheat, by which I, no doubt, lost considerably in corn.

This crop was so extraordinary that I had hesitated about informing you, (although it was published in the *Easton Gazette*) until I saw that it was exceeded in Pennsylvania. If you think that some notice of this crop will have a tendency to retrieve the character of the Eastern Shore from the charge of sterility, you are at liberty to mention it.

At this moment, I have not time to inform you as to the process of cultivation, but I will be happy at some other time to mention it, particularly if you wish me to do so.*

THOMAS P. BENNET.

[EDITOR.]

PACKING OF HAY.

MR. SKINNER,

Some of your enterprising and intelligent New-England correspondents, acquainted with the business, would doubtless confer a favour on many of their brother farmers, residing near the waters of our noble Chesapeake, and its tributary streams, by making known, through the medium of your useful paper, the most simple, expeditious and economical method practised among them, of packing hay for distant transportation. I have been credibly informed that the packed hay of the eastern states finds a market even so high up the Mississippi as Natchez; and no doubt much more of that valuable article would reach your city, were the farmers of this part of the country, who have it to dispose of, acquainted with an easy and not too expensive manner of sending it thither. Your attention thereto will oblige a farmer, and an ENQUIRER.

QUEENS TOWN, MARYLAND.
April 18th, 1821.

BUTTER made quickly by freezing MILK.
Salem, (Mass.) May 7th, 1821.

SIR,—By the aid of frost, I find it much easier to convert milk into butter in the winter, than by any process whatever during the summer season. The milk when taken from the cow, is immediately strained into earthen pans and set in the coldest part of the house—as soon as the frost begins to operate, a separation takes place; the cream rises in a thick paste to the top, and leaves the milk without a particle of the cream, frozen in the pan. The cream is not so hard but that it can be easily scraped off with a spoon, down to the solid ice. It is then set aside until a sufficient quantity is collected for churning, when it is warmed just so much as to thaw the cream sufficiently to put it into the churn. I have never known it to require more than five minutes to convert such cream into butter, after the churning had commenced.

All the butter consumed in my family the last winter has been made in this way, and I think I never had finer. I ought to state that I think this method injurious to the cream for certain purposes, such, for instance, as whip-

sellabub, as my domestics found, after the cream was mixed with the other ingredients, the least agitation brought it into butter. Any assistance that I can give you from this section of the country, will be furnished with pleasure, by your friend & servant.

J. S. Skinner.

MANAGEMENT OF CALVES.

SUCCESSFUL EXPERIMENT OF REARING CALVES WITHOUT MILK—FROM THE TRANSACTIONS OF THE BATH SOCIETY, VOL. 5TH.

TYTHERTON, Dec. 3, 1789.

SIR,

The following is as near a calculation of the expenses of rearing my calves without milk, as I can at present assert. In the year 1787, I weaned 17 calves; in 1788, 23; and 1789, 15.

I bought in 1787, three sacks of linseed; I put one quart of the seed to six quarts of water, which by boiling ten minutes became a good jelly; this jelly is mixed with a small quantity of the tea of the best hay, steeped in boiling water.

Having my calves to drop at different times, I did not make an exact calculation of the expense of this hay tea; but out of my three sacks of seed, I had better than two bushels left at last. I gave them the jelly and hay tea three times a day. To the boy who looked after them, 6d. per day—the price of my linseed was 4s. 6d. The whole three years seed, two pounds five shillings. My calves are kept in good growing state, and are much better at this time than those of my neighbour, that are reared by milk—they do not fall off so much when they come to grass.

I am, &c.

TH. CROOK.

* 11 cents. † 1 dollar. ‡ 10 dollars.

An easy method of curing Warts.

It is thus—Take an apple and cut it, and rub it for a few minutes over the wart, the juice of the apple will loosen the root of the wart, which will, in a few days drop off.

THE FARMER.

BALTIMORE, FRIDAY, MAY 18, 1821.

PRICES CURRENT.

Flour, from the wagons, \$3 87½ a 4—Whiskey, from do 24 cents per gallon—Hay, per ton \$19—Straw, 7 to 8—Wheat, White 80 to 82 cts—Red, do 73 a 76—Corn, white 32—yellow 34 cts.—Oats, 23 a 25—Rye, 35 a 37—Barley, 25 to 30 per bushel—Cod Fish, per quintal, wholesale \$3, retail ditto \$4—New-England Beans per bushel, \$1 12½—ditto Peas, 75 cents—Plaster in stone \$6 per ton—do ground, \$1 35 per barrel, 33 cents per bushel, \$8 per ton—New Orleans Sugar \$7 50 to 10—Muscovado, do \$7 50 to 9 25—American White Lead, \$12 50—Ground, do \$13 a 14—Linseed Oil, 75 cts—Feathers, 40 to 45 cts—Potatoes, per bushel, 62½ to 75 cts—Shad, new, \$6—Herrings, \$2 to 2 25, declining—Fine Salt, 45 per 100 bushels—Ground Alum do 46 to 48—St. Ubes, 50—Cadiz, 38 to 40—retail do.—Turks' Island, 75—Cadiz ditto, 60—Live Cattle, 5 to \$5 50—Beef, Mutton, 8 to 10 cts—Hams, 10 to 12 cts—Middlings, —to 10 cts—Butter, 20 to 25 cts—Eggs, 12½ cts—Cheese 8 to 10 cts. pr lb.—Tur, \$1 50—Turpentine, \$1 87½ a 28, Pitch, \$24; Rosin, common 1½, bright do, \$3 per

cel.—Varnish, 25 cts—Spirits turpentine, 33 cts per—Cotton, good Upland, 13 a 15 cts. very dull—Rice, 3 a 3½ cts.—ship and flooring Plank, \$25 to 27—Shingles, best 6½, to 7, com, \$3 to 4 4 p. M—Oak wood, \$1 50, Hickory, \$5 per cord—Clover seed \$5—Am. Orchard, grass do, \$1—Eng. do, do, or Cockfoot do, \$8.—Herds do \$3—Sunfain, per bushel \$3—Millet, do, \$2—Lucern, 62 cents per lb—Sweet Scented Vernal grass, 150 cents.—Trefail, 50 cents per pound—Ruta Buga, 50 cents.—Mangle Wurtzel, 175 cents per pound—Cabbage seed 2 to 6 dols. per pound—Cauliflower, 75 to 100 cts. per oz.—spring Turneps, 8 per bushel—Peas, 25 to 37 cts per quart—short orange Carrot, 12½ cts.—Parsnip, 12½ cts—Lettuce, 25 cents—Radish, 12½ to 20 cts—Beet 20 cts—Broccoli, 31 to 100 cts.—Cucumber, 37 to 50 cts per oz.—Turnip seed, 30 to 125 cts per lb—Chicory, 75 cts per per pound—Rape, 12½ cts do—large Amsterdam Cabbage for cattle, 25 cents per oz—Irish Furz or Wins, \$2 per pound—Bush and Pole Beans, 6½ to 25 cents per quart—New York premium Ploughs of sizes, 7 to \$16—Box Churns, 8 to \$9—Drill Machines, 10 to \$11—Bennet's broad cast Machine for sowing Clover, Turnip, and Grass Seeds, \$18—Expanding Cultivators, \$15—Post Augurs, 5 to \$9—Flexible Tubes, to relieve cattle when hoven or choaked, with gags, the pair \$5—Corn Shellers, 20 to \$25—Turnip Scoops, 50 cents each—large 2 horse Connecticut Ploughs, iron mould boards, \$11—do do. wood, 10½—small Ploughs, do \$7 50.—Tobacco—A few hds. Richmond, new crop, good, sold the present week at 7 dollars.

JOSEPH P. CASEY, SEEDSMAN, &c.

No. 2, Hanover Street, has for sale.

Patent Grass, and Bramble SCYTHES, NATHAN'S HAY RAKES, Patent SHEEP SIKARS, HILLING HOES, HAY KNIVES, Double Twilled SACKS, RUSSIA MATS. A variety of GARDEN and AGRICULTURAL IMPLEMENTS, Garden and Flower SEEDS, Canary SEED, English SPLIT PEAS, WHEAT STONES, DYNAMETERS, and LACTOMETERS, OAK CHESTS of Polished Tons, GREEN HOUSE PLANTS, and ROSE TREES in pots.

BEATSON'S New System of Agriculture, without Lime, or Dung, or Summer Fallow: Brush, on Wheat and Flour—TO BE SOLD ON PLEASING TERMS.

Sheep Establishment ON SMITH'S ISLAND.

The subscriber wishes to lease, for the purpose of a SHEEP ESTABLISHMENT, his valuable estate called Smith's Island, at the Capes of Virginia. This property possesses rare and peculiar qualities for the raising and support of Stock of various kinds, more especially Horses, Mules, and Sheep. Added to more than 2000 acres of pastureage at all seasons, are the advantages of its insular situation, salubrious climate, and the great and singular benefit of stock being supported at all seasons free of expense. To Northern capitalists, who have large flocks of those surely to be considered *National Animals*, and who can believe that "America will minister to her wants, by the due employment of her domestic resources," an inspection of Smith's Island, its nature and properties, is particularly recommended. The subscriber's stock on the Island, consisting of about 200 cattle, and about 400 sheep, will (in the event of a lease) be disposed of at a fair valuation. The subscriber will also lease a valuable small farm, on the main, a few miles from the Island called Arlington. It is as good land as there is in the county, and pleasantly situated on the Chesapeake. For further information, please apply to Capt. Wm Jarvis, near Northampton Court House, or address to

GEORGE W. P. CUSTIS.

Arlington House
near Alexandria, D. C. May 5 }

PUBLISHED BY JOHN S. SKINNER.

A M E R I C A N F A R M E R.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL. III.

BALTIMORE, FRIDAY, MAY 25, 1821.

NUM. 9.

AGRICULTURE.

Virginia Husbandry.

The last editorial remarks under this head, were published in number 51 of the 2d volume—the description there given of the “Wheatland” farm may be regarded as a tolerably fair specimen or sample of the natural quality, advantages and productiveness of the land over which I passed in Jefferson County; but it would be an egregious exaggeration to hold up that well conducted farm as a standard of the actual productiveness of the land in the county generally.—For there is, in this respect, all the difference that exists in the appearance and utility of a noble horse, in the hands of a cruel and ignorant, or a considerate and generous master.

Leaving with sentiments of gratitude and regret the hospitable neighbourhood of Charlestown, I journeyed on by the way of Battletown to Winchester. On the farm of Mr. N. near Battletown, my attention was drawn to a great improvement in the construction of the ox-shovel commonly used on turnpike roads, (but here employed for making ponds to gather rain water for the use of the stock.) In what that improvement exactly consisted I cannot now state, but I recollect that without giving complication to the implement, it gathered the earth more rapidly, and delivered itself of its burthen more easily, than the one in common use. I was promised a drawing of it, but every one knows there are many sensible men and practical farmers, who are really proud of their profession, and industrious in all else—yet, unfortunately for the agricultural body, they have an aversion to the formal communication of their experience or inventions, for publication.

Those who clearly understand the aim of this journal, seeking as it does, to improve our rural economy and to heighten our solid domestic comforts, will judge it not out of place for me to remark here, that I saw at the table of Mr. N. the wheat and maize flour made into bread of almost every form and mode, and in very remarkable perfection. Much credit has been given to the Virginia farmer for the superiority of his bread stuffs, as indicated by the infinitely varied, and beautiful displays of it on his table—whereas, I am convinced, that altho’ something is to be ascribed to his less niggardly manner of grinding his grain,* and to the influence of the climate, which produces it; still the chief honor is due to the wife who takes a pride in adorning his table by so many skillful and exquisite

* Every purchaser of bran for cows, knows the difference in the value of “Virginia bran,” and that from a Baltimore merchant mill.

preparations of this article; and seeing how much we have contracted the sphere for the display of female taste, talents and industry. I take to be ungenerous to withhold the meed of praise, in any case where it is so manifestly due.

Arriving at Winchester, I had the good fortune to meet with a zealous agriculturist, judge H. not then otherwise known to me but as a much valued correspondent. An invitation to ride over his estate, was accepted with much pleasure; I saw there, an exemplification on a large scale, of the best manner of constructing stone fences, according to a method which the reader will find explained in the first volume of this work. As it was at judge H.’s, that I saw Chicory growing, for the first and only time, I may here properly introduce the following notice of that plant from the Emporium of Arts and Sciences—vol. I. new series, conducted by T. Cooper, esq.—I afterwards understood that the chicory is a favorite object of culture with Mr. Jefferson, who also recommends it as a plant of great value for stock and worthy of our earnest attention:—

CHICORY. SUCCEORY. CHICORIUM INTIBUS.

Extract of a letter from Judge Peters to the Editor.

“In the life time of General Washington, many of our friends had frequent correspondence with the Scandinavians in agriculture, in Europe. It became so burdensome to him, that at his request I took it off their hands. I had much intercourse with several of them on the subject of the chicorium intibus. Arthur Young, was enthusiastic for a time, in favour of this plant. He has hot and cold fits on most subjects. Both the General and myself tried this plant as a grass, with no such wonderful effects as those Mr. Young had portrayed. Yet we found to a certain point that it was valuable. Having long given up my farm to tenants, I am only a sort of chamber-counsel in husbandry. I reserve 20 or 50 acres for amusement, and on this small scale continue to try every thing I hear of, any wise likely to be useful. As a material for Coffee, I have never known the Succory, as we call it, or Chicory as it is called perhaps with more botanical correctness. The native succory I found in this part of the country was a mean plant. If without much trouble you could procure for me seed of good native or foreign chicory, I will begin some experiments on its uses as a substitute for Coffee. Inform me of the method of treating it for this purpose. I am, &c.

RICHARD PETERS.”

The Chicory, is a species of Endive; wild Endive; the seeds of these plants are much alike.

In the state of Pennsylvania, though but in a few places, chicory or succory as the German settlers call it, has been cultivated as a substitute for coffee with much success. The plant is sown in beds either drilled or broadcast; and thinned out to about six or eight inches apart. In the beginning of winter they are taken up, washed, and put into an oven after the bread is drawn. In this state they keep well. When wanted for use, they are again put into the oven after the bread is drawn, and dried till they assume a full brown colour. They are then ground or beaten in a mortar, and mixed with from one fourth to one half of their weight of West India coffee. I

have repeatedly drank of this beverage without distinguishing it from common unmixed coffee. In Northumberland and the neighbourhood, and at Williamsport (Pennsylvania) this use of chicory is common. It would be improved, if in the last roasting, the chicory could be roasted with the coffee so as to imbibe the vapour of the latter. The chicory of itself is the best substitute hitherto known.

In England they use (or rather propose, for coffee is too dear there to be a common beverage) as substitutes for coffee, 1st. Roasted Barley. 2dly. The seeds of the yellow water flag, or flower de luce (*Iris pseudacorus*) 22 of Nich. Journ 70. 3dly. The ockray, which is also a fashionable substitute in the West India Islands. But the German establishments for the manufacture of chicory coffee, and what I know of it by my own experience, leads me to recommend in preference, this plant to all others.

Previous to the capture of Jena, by Buonaparte, there were upwards of two millions of pounds of chicory coffee, exported from that place and Brunswick to various parts of France and Germany.

But whatever may be the use of this plant as a substitute for coffee, it is not to be compared in point of importance to its use in agriculture, particularly as fodder for cattle of all kinds in cases of a dry spring, or summer. It is equally nutritious, and more productive than Luzerne, without requiring half the attention.

The first notice I find of the agricultural use of this plant, is in the 16th vol of Young’s annals of agriculture, p. 48, where Mr. A. Zappa of Milan, enumerates it as one of the favourite plants in the meadows of Lombardy. This was in 1786. In 1787, Arthur Young being at M. Crette Des Pallieux’s near St. Dennis, was so struck with it, that he bought 10 lbs. of the seed, and sowed it at Bradley, 10 lbs. to the acre. In May 21, 1789, he cut it on a small patch, that yielded at the rate of upwards of 12 tons 11 cwt. of green fodder per acre, at a time when every other meadow was parched and dried up. On the 24th July he cut the same patch again, which yielded at the rate of 16 tons 4 cwt. of green food; on the 3d of December, he cut it again, and obtained at the rate of 9 tons 14 cwt. per acre; in all, 38 tons and 9 cwt. of grass. This, on losing three fourths in drying, would have yielded upwards of 9 tons of Hay.

But these experiments being made on a small scale, furnished no criterion for a regular course of husbandry, in which chicory should form a permanent part of the meadow crop; he proceeded therefore in sowing it, till in the spring of 1792, he had 14660—74 acres, either entirely or partially sown with chicory. The other grasses he sowed with it, were the red clover, and timothy, rib grass, poa trivialis or common meadow grass, and these were sown with the chicory on the principle that as this grass does not tiller, the other accompanying grasses fill up the ground and make a full, close sward. It may be noted, that in England, chicory appears as one of the earliest spring grasses, being from three to four inches high on a poor soil on the 11th May; but yet, not so early as the avena elatior the tall oat grass, or the rough cock’s foot, dactylis glomeratus, [or orchard grass.] By this time Young had ascertained, 1st that though a perennial, it will not bear frequent seeding without being impoverished: and 2dly, that it is better to cut it after the first year at least three if not four times, in the course of the season. In this year he has registered the feeding of 383 acres of chicory alone, and with other grasses, by means of sheep. Indeed, all cattle, horses, oxen sheep and swine eat it greedily.

* The life of this most useful citizen who died 30 Nov. 1799, may be found in 14 Month. Mag. p. 237.

This experiment appears to have turned out very satisfactorily, but it is too long to repeat here. The subsequent numbers of the annals of agriculture contain notices by the editor himself, though few by other persons. In the volume for 1799, I find the following note. "If the reader turns to vol. 28, p. 386, he will find an account of chicory by Mr. Martin of Northampton; meeting him this year at the Duke of Bedford's sheep shearing, he informed me that in the present season he has nothing on his farm, no plant or crop whatever, that will keep half the stock which his chicory will, though it be four years old."

His account of the French husbandry of chicory may be found in the 2nd vol. of the tour to France p. 62.

In addition to this, I may add, that in the year 1793, Mr. Roscoe of Liverpool, walked with me to see Mr. Wakefield's Dairy from about one and one half mile from the town.

Mr. Wakefield had sown in 1795 about three acres, and cut it 3 times in twelve weeks; the whole was given to ten heavy working horses, who went through their common labour upon it without hay or corn. He calculated to feed his dairy of 120 milch cows during the succeeding summer chiefly on chicory, and in the winter on potatoes steamed. He gave me 2 pounds of the seed, which I distributed partly to Mr. John Adlum then of Muncy, and partly to Mr. Samuel Wallis, but I believe they made no use of it.

His mode of steaming his potatoes is curious. A large iron pot is let down into a hole even with the surface of the ground. A fire place is made underneath, and a brick flue at the opposite end. Round the rim of the pot is a wooden kirk about two or three inches broad. When the water boils, a hog's-head full of potatoes (well washed and scrubbed at a trough under the pump) is rolled over the boiler with in the wooden kirk. The bottom of the hog's-head is pierced full of holes. A loose cover is put on the top. The steam ascends through the holes in the bottom, and in half an hour, the potatoes are boiled. The hog's-head is then rolled off and another rolled on. I think he had three iron boilers for the supply of his cattle with steamed potatoes. Potatoes were at that time worth about 2s. 6d. sterling the load of 240 lbs. washed, or 25v in the dirt. A bushel of potatoes will weigh about 72 pounds. The average crop of Lancashire and Cheshire, cannot be taken at less than 400 or 450 bushels per statute acre. This is effected by dint of manure laid on at the rate of 10s. sterling an acre, and accurate weeding, which the potato crop pays for, and brings the land in heart for two or three years.

In 1797, that promoter of British Agriculture the late Duke of Bedford, directed a poor field of brushy soil on his farm at Woburn, worth from 7 to 10s. an acre, to be sowed with chicory. The first year's produce supported seven Leicester sheep averaging 22lb. a quarter, per acre, for six months. His grace was of opinion that no other artificial grass on the same land would have equalled this.

Arthur Young says that the *Chicorium Intubus* grows wild in Suffolk and other parts of England. The Rev. Mr. Mühlenberg of Lancaster says it is a common plant or rather weed, about Lancaster. They both agree that in its wild state, it is not worth any thing. But by long course of cultivation the French, and from it, the English seed, is now a very valuable improvement on the wild succory. The Chicory I have seen growing about Northumberland and in Lyncome county, is certainly not equal to what I saw at Mr. Wakefield's in 1793: In 1797 and 1798, the seed sold in London for a dollar and 5s. the lb.

T. C.

An Address delivered before the Massachusetts Agricultural Society at the Brighton Cattle Show, October 17th, 1821. By R. Sullivan.

(Concluded from page 58, No. 8.)

At the present moment the prospect of an increase of his crops, in future years, may not appear to the farmer desirable. The great abundance of

the harvest, and the difficulty of obtaining a vent for his produce, fill him with despondence. But is it not true, that if he is compelled to sell cheap, he may buy proportionably cheap whatever he may have need of? Besides, the tendency of plenty is to encourage population, and manufactures, and thus to raise the value of land and to increase the permanent demand for the productions of agriculture. Besides, the farmer has a further resource in seasons of uncommon plenty, to prevent waste—that is, to increase his live stock.

But let us not confine ourselves to the consideration of the progress of agriculture as it may concern alone the prosperity of individuals. The individuals in a country may be rich, and the public at the same time be poor—if heaving nothing to eat may make a country poor—merchants and manufacturers may be opulent, but if agriculture is neglected, neither the one or the other may be able, in certain exigencies, to procure the necessities of life. I state an extreme case, but it is no less true, that the substantial wealth of a country, which consists in abundance of food, depends on a flourishing state of agriculture. In a time of scarcity, long continued, whatever we call property would lose its value. Agriculture is not only an indispensable resource, as a means of preserving in being those who now exist, it is no less important as a means of increasing the population of a country. Hitherto our growing numbers have been sustained rather by the clearing of new lands, than by any great progressive improvement of the old. But setting apart but a moderate allowance of forest for the various purposes for which it is important, we must look to a better husbandry for the support of a much greater number of inhabitants.

We cannot be at a loss on what resource surest hopes of public prosperity, when we consider how independent is agriculture of the hazards and reverses to which commerce and manufactures are exposed.—"The ordinary revolutions of war and government," it has been truly said, "may dry up the sources of the wealth which arises from these, while that which arises from the solid improvements of agriculture is durable. The troubles of the fifteenth and sixteenth centuries greatly diminish the commerce of Lombardy and Tuscany. But those countries continued notwithstanding, and still continue, among the most populous and best cultivated parts of Europe. The civil wars in Flanders, and the Spanish domination which succeeded them, chase away the great commerce of Ghent, and Antwerp, but Flanders is still rich, highly productive, and well peopled."

The wealth of the merchant may be transferred from one country to another, but that of the land proprietor is as fixed as the earth. It is true, the face of a country may be swept by hostile armies, but it is only the harvest of a season which can fall within their destructive grasp; the productive power of the soil still remains unimpaired. But the wealth of the merchant may perish irretrievably by the conflagration of a city, or be sunk in the ocean.

However individuals may be affected, whether farmers or others, by the common vicissitudes of life, as respects the public, the improvements in agriculture are an imperishable and continually accumulating resource.

But it by no means follows that, because agriculture ought not to be neglected, we may therefore turn away from commerce, as if, on the whole, the balance of its good and ill success were equal. It has done much to enrich individuals engaged in its pursuit, it has done more for agriculture. In those countries to which we have just alluded, as having enjoyed a productive commerce, which subsequently passed away, if their agriculture was, for a long time, unimpaired in Europe, it was that very commerce which nurtured it, and finally gave to it all its refinement.

As agriculturists, we have fresh proofs every day of the beneficial operation of commerce on our interests. It takes our surplus produce to its best market. And this is not all—the surplus capital which it throws into the hands of the merchants, naturally

tends to the soil as its ultimate destination. Here it finds its greatest security, and here it will be most permanently beneficial to the country. Most of our richest merchants are land proprietors, and to some among them, we are indebted for recent and valuable improvements in agriculture.

It were hardly possible at this time to allude in a public address either to agricultural or commercial interests, much less to treat of them as leading topics, without recalling to the mind of every one, the subject of the new tariff, which must again soon engage the attention of Congress. I refer particularly to those parts of it which are professedly designed for the encouragement of domestic manufactures.

However often and ably the right of Congress to control private industry, and to give it a direction into new channels at discretion, may have been recently combated, it cannot be too often urged, that it is an unauthorised assumption of power. It may well be questioned whether any member of the Convention which framed the Constitution, to whatever extent his jealousy of the power to raise a revenue may have carried his apprehensions, ever conceived that it would be used to convert a merchant into a manufacturer, at the pleasure of congress—to compel the farmer to abandon the pursuits of husbandry for the spindle and shuttle—to foreclose the inclinations—the bent of genius, the temperament and tastes of men, and to designate their employments by the statute book. It is no answer to say, that no such power is claimed, and that the measure complained of will produce no such effects—the principle of the measure contemplates such a power, and involves such effects.

—If government may so burden and embarrass one branch of industry as to discourage the pursuit of it, avowing the purpose to be to build up another branch at the expense of the first, it has power to go on and curtail or annihilate any or all other branches. Should the company of tallow chandlers think proper to represent before Congress, that it would be for the interest of the nation to prohibit the importation of whale oil, by the imposition of a heavy duty, a concurrence of Congress in their views would be attended with this consequence—that not an American whale ship would be again seen on the ocean, at least none, whose cargoes should be destined for the supply of the home market—and the island of Nantucket might soon be deserted by its seven thousand industrious and thriving inhabitants. We see nothing in this case differing in principle from that of the cotton and woollen manufactures, with the provisions in their favour contained in the new tariff, connected with the views of Congress in making these provisions.

Whatever supposition there may be of public good and national advantage in acts of legislation, by which the claim of one class of industry to the protection of government is declared subordinate to another, it must be ill founded. In general terms, no one will question that the citizen is entitled to the protection of government in his person and property, and that, if such protection means any thing, it is that each one is to be protected in that calling, which he may elect. But upon the doctrine, that government may have its favorite class, whose interest it may cherish with an exclusive spirit, what becomes of the right to equal protection? In the case we are considering—the merchant enjoys it not; nor the farmer, nor the mechanic. Thus may we go on, and enumerate every denomination of persons in the community, until we come to the fearful result, that the Constitution is a dead letter; and that we have no other security for our rights than the discretionary forbearance of Congress to intermeddle with them.

The present distresses of Great Britain, growing out of a policy, similar to that on which our Government has entered, are known to all. A leading merchant of London, who is also a distinguished statesman, has pointed out the course by which this accumulation of evil has been brought upon that country. "Whenever" says he, "the assistance of government is called for by any class of manufacturers or traders, it is usual to make the most splendid display

"of the importance of that particular branch to the nation at large. The West and East India interests, the ship owners, the manufacturers, and others, have all made their representations; but it should be recollected, that it is contrary to sound policy to advance one beyond its natural means, and still more so when that must be done at the expense of the others."

The reflection is a pleasant one, that while we are defending the interest of the farmer, so far from opposing that of the manufacturer, we are defending that also—because, after all, his interests will find their best security in his own enterprise, skill, and industry. His calculations on the partiality of government will prove fallacious. A policy, which condemns to the people, must be short lived. Our manufacturers are known to be in a thriving state—the whole country is proud of their success. The theories of mistaken political economists apart—a doubt may exist whether the manufacturers have any thing to urge in favour of the new duties. Their industry is protected—they are honoured by the community—and the encouragements, which we are prepared to offer on this anniversary to the farmers of our Commonwealth, are to be extended equally to the manufacturers.

The merchant unembarrassed by prohibitory duties will need no stimulus but his own enterprise. The manufacturer will exhibit to us this day ample proofs that he can thrive without the further aid of the government. The farmer alone declines to avail himself of the means of prosperity. He has been too long accustomed to view himself in the light of a day labourer rather than as the professor of an honorable and lucrative art. The mysteries of husbandry are considered but as the lesson of a day—and every man, the moment he becomes the occupant of a farm, is allowed to style himself a competent farmer. "It fills me with astonishment," said Columella, the Roman, "that while those, who wish to become orators, all ways have recourse to one as a teacher, whom they may take as a model—and those who learn music, dancing, or any other of the lighter and more frivolous accomplishments, employ, of course, a professed teacher; Agriculture, that most important of all arts, has neither masters to teach it, nor pupils who seek to be taught. Is there then nothing in it which requires to be studied?—Is there nothing to reward research? For myself," he continues, "when I take an enlarged view of this noblest of all pursuits, and survey it on all sides, and consider what encouragements that it would be profitable to know, I fear that I shall see the end of my days before I shall become a thorough master of all its mysteries!"

And how melancholy, gentlemen, are some of the consequences of so great a neglect of agriculture amongst us! Of the sixty thousand individuals, who annually emigrate to the south and west from New England, in search of subsistence, most of them may rest in safety the places of their destination. But if you follow them in imagination, into the wilderness, you will soon see that its morbid dampness and the numerous privations and hardships, to which they are unavoidably exposed, soon finish the work of destruction, which a miserable agriculture had begun. The offspring of parents who possess at home a redundant territory, are compelled, for subsistence, to alienate themselves from their kindred, and to interpose distance of a thousand or two thousand miles between themselves, and all they have valued from their infancy.

When we learn, that in a canton in one of the highest habited regions of the Alps, where neither nature nor art can sustain more than a small number of humbeings, it has long been the custom for the young on attaining to a certain age, to enlist in the military service either of France or Spain, for a term of year, and that all who decline, remain not only without consideration among their countrymen, but are viewed with obliquity, we acquiesce in the necessity of this harsh policy. But we have far other impressions of a course of things bearing a similar as-

pect in Massachusetts—when the neglect of agriculture is the only assignable cause of no inconsiderable part of the emigration which takes place from year to year.

Were the modern improvements, (which have been tested,) allowed to spread themselves over the face of our country, and to fertilize our fields, much of the emigration would cease—manufactures would more extensively flourish, and obtain their only sure and permanent support, an abundant and cheap subsistence for the workmen.

But our agricultural societies are every where rising up, like so many temples of science, inviting our citizens to come and do homage to an art, which is prepared to open a fountain of wealth to gladden our whole country. The institution of shows of industry, is admirably adapted to draw our husbandmen away from the influence of injurious prejudices, and still more injurious habits, and to awaken a spirit of emulation and liberal inquiry. Until within a few years the husbandman was known only as the vender of his produce—now, his skill and industry are expressly recognised as public benefits. He will no longer labour in the retirement of his fields, looking only to so humble a result of his toil, as that of a scanty harvest. No—he will have always in remembrance that a day is appointed, in each year, on which, in the face of the world, he may claim to be named as a benefactor to the public, on exhibiting proofs of uncommon diligence and proficiency in his art. He will come here—he will meet an assembled community, as eager to adjust his claims as he may be to urge them. They will enter with him into the field where the competition is held. Those, who from inexperience, or other cause, may be incompetent to weigh the merits of the competitors, will seek to inform themselves by inquiry of those more skilled. All will be ambitious of the honor of anticipating the decision of the judges.

The animated discussion, among the multitude, of topics of agriculture and the useful arts, will give a new interest to the various subjects—the zeal here inspired, and the knowledge obtained, will be carried home, and be soon seen in their effects like the invigorating power of a rich compost—and the solitude of the country will be relieved, not only by more ardent and better directed labours, but cheered by more exhilarating prospects.

With a power of influence such as this, what limit can we assign to the usefulness of our agricultural societies? The obligation upon them to use this power to its full extent, ought to be deeply impressed—nor should they remit their endeavours to make themselves acquainted with the improvements, which so liberal and so progressive an art may from time to time offer, whether they originate in our own, or in other countries. Nor is it less important, as a means of diffusing these throughout the State, that the Societies should seek to increase their funds, so that their power of bestowing premiums may be commensurate with the improvements they may think it important to recommend. The time, we may hope, will arrive when the smallest details of rural economy may become subjects of reward, as well as the leading operations of husbandry. I say the smallest details, because in husbandry there is nothing which is unimportant or uninteresting. There is nothing so small as not to have, either in a moral or economical view, an influence on the well being of the farmer.—There is nothing of so little consequence, that, if disregarded, its neglect will not be perceived to mar the harmony of that delightful picture—a well ordered, neat and polished husbandry. How soon, we may impatiently ask, how soon shall we behold the day, when such a picture shall gladden our eyes, whichever way we turn them, in this land of precious privileges!

ON SHEEP.—By John L. North, Esq.

Str.—As merino sheep are daily becoming more important as well to individuals as to the community, it will not, I hope, be unacceptable to the Society, to have a few remarks on their introduction into some of the countries of Europe; on the practicability of acclimating them here; and also on their great supe-

riority over every other kind now in our state. For a long time it was the prevalent opinion, that merino sheep degenerated in firm and size, as well as in fineness of fleece, every where except in Spain; for it was generally believed that their frequent migrations from the flat lands, to the mountains, (to which agriculture was almost entirely sacrificed), but more especially that some peculiarity in the soil and climate of that country, was essential to their greatest perfection in these respects. From this opinion, we accordingly find no deviation, until the year 1723, when their introduction into Sweden was made a national concern, a premium of 25 per cent. being allowed by the government "on the value of the wool to the grower." The climate of Sweden is regarded as less friendly to sheep than that of any other improved portion of Europe, both on account of the heat and shortness of its summers, and the length and severity of its winters; nevertheless they have not degenerated, even there, although Sweden possesses upwards of 100,000 merinos of the pure blood, and nearly a century has passed since they were originally introduced. A circumstance so extraordinary as this, it might have been expected would not have been suffered to pass without improvement, much less without notice; yet for a considerable time, (such is the power of prejudice) no attempts were made by other countries to secure this valuable breed. At length in 1786, Louis XVI. after having, by numerous experiments, ascertained that they would do equally well there, imported into France, under the care of Spanish Shepherds, four hundred rams and ewes, which were by permission of the then sovereign king, selected from the best Spanish flocks. These so far from degenerating, on the contrary, have actually improved in every respect; for M. Gilbert, one of the members of the national institute, asserts "that they do not yield in any circumstance, to the most beautiful in point of size, form and strength, or in the fineness, length, softness, strength, and abundance of the fleece." He adds, "the manufacturers and dealers in wool, who came in numbers to Rambouillet this year, (1796) to purchase, unanimously agreed to this fact, at the very time they were combining to keep down the price." This statement is confirmed by M. Tessaire and Luzzard, and likewise by the Duke of Bedford, who says, "that he found the sheep of Rambouillet of a size he was unprepared to expect, and that still the wool preserved its original purity." He also states that "samples of the wool taken when the sheep first arrived, and at various periods, since that time, were examined by him, with all possible accuracy, and evidently declared a progressive improvement." Col. Humphries, of Connecticut, also mentions in his letter to the Agricultural Society, of Massachusetts, that the national flock of France, gave double as much as those of Spain, and still their wool retained its original fineness." In England where they have lately been carried, they have also ardently undergone a change for the better; for Doctor Parry insists, "from his own experience, that the wool of his upland ewes, in the fourth generation, was injured when he put to a full blood Spanish ram." Encouraged by the success of these and other experiments, and believing from circumstances, that even the condition of the imported breed of Europe might be meliorated in this country—in 1802, Mr. Livingston, then our ambassador in France, purchased several ewes and a ram, and shipped them for the U. States. These were picked from the so justly celebrated Rambouillet flock; yet Mr. Livingston declares them to be inferior in every point, to those of his own raising, but particularly in the quality of the wool. "It is certain," says a writer on the subject of merinos, "that Mr. Caldwell, of New-Jersey, in all his enterprising purchases, from the late importations of Spanish sheep, has never met with any equal in appearance, fineness of fleece, or length of pile, to those of his own raising, from his original flock." Their easy acclimation at the northward, and the great profit derived from them, joined to the persuasion that they would thrive equally well in our climate, induced several merchants to import a few of the mixed breed from the northern states, and some full bred Spanish me-

times into Charleston. A few of both descriptions were disposed of there. I have seen, in different parts of the state, many of the lambs of these, most of them were superior in form and size to the parent stock, and such of their fleeces as I have noticed, were decidedly finer, without adding other proofs of their progressive improvement, and of course, of the practicability of acclimating them in the southern, as well as the northern states. I come now to the principal object of this communication, which is to show that they are much more advantageous to the farmer. The sheep of this state, in particular, may be divided into three or four different kinds, but I shall only notice those that are attended to on account of their wool. The most remarkable of these, indeed the only one worthy of observation, is that which resembles the Southdown sheep of England, which are thus described by Lacock: "It has no horns, its legs and face are grey, its head and upper part of the neck very thick, the pile planted very closely on the pelt, the fleeces very unequal, that of the back differs considerably from the produce of the sides and shoulders, and the brush becomes suddenly very coarse, the pile not uniform, and frequently contains a number of coarse and long hairs, which prove hurtful to the cloth." Their fleeces, it is understood commonly weigh from two to three pounds, and sell in England at about 42 cents the pound. The following description of merino sheep is from Mr. Livingston's book, on that subject. "The race varies greatly in size and beauty, in different parts of Spain. It is commonly rather smaller than the middle size sheep of America. The body is compact, the legs short, the head long, the forehead arched. The ram generally (but not invariably) carries very large spiral horns, has a fine eye and a hold step. The ewes have generally no horns. The wool of these sheep are so much finer and softer than the common wool, as to bear no sort of comparison with it; it is twisted and drawn together like a corkscrew; its length is generally about three inches, but when drawn out, it will stretch to nearly double that length. The wool is, when cleansed, extremely white, yet on the sheep it appears of a yellowish or dirty brown color, owing to the closeness of the coat, and the condensation of the perspiration on the extremities of the fleece. The wool commonly covers a great part of the head, and descends to the hoof of the hind feet, particularly in young sheep; it is also much more greasy than the wool of other sheep. The skin is of a fine carnation red and very thin." It is stated, on good authority, that merino wool has sold in England at upwards of 25s. sterling the pound; at the northward it readily commands two dollars. It has already been remarked, that "the wool of these sheep is so much finer and softer than that of common sheep, as to bear no sort of comparison with it;" but this is not the only circumstance in which they claim a superiority; they also yield more wool in proportion to their size or weight of carcass. To settle this point, five common sheep were weighed on Mr. Livingston's farm, their average weight was found to be 82 lbs. 6 oz. the average weight of each fleece 4 pounds. 4 oz. so that these sheep gave one pound of wool to every twenty pounds of carcass. With the same view twelve half and three-fourth blood ewes were weighed, the average weight of each was 63 lbs. that of the fleeces 5 lbs. 14 oz. which is one pound of wool to every ten and a half lbs. of carcass. And my own observation convinces me that, great as this difference appears to be, it is not exaggerated. I last year sheared sixteen common sheep, seven of which were three years wethers of fine size; their united fleeces gave me only 32 lbs or 2 lbs. to each fleece, whilst four half bloods, of the common size, one of which was shorn the fall before, yielded me twenty pounds, or five pounds to every sheep. Mr. Arbuthnot, of Bath, (formerly a woollen manufacturer) has for several years tried the Spanish cross with the Wiltshire bred, nearly trebling the wool in quantity, and improving it extremely in quality. "The carcasses," he observes, "are reduced in size, but improved in mould, and their disposition to fatten increased." Now if we suppose the wool of each sort to be worth

fifty cents per pound, and their keep through the winter one dollar fifty cents, there will then be a loss of fifty cents on every common fleece, estimating these at two pounds each, which is believed to be a fair estimate; but in the case of mixed merinos, a clear gain of fifty cents, their fleeces weighing double as much as those of common sheep. In Mr. Livingston's treatise on sheep, to which I am indebted for most of the information this paper contains, and which I earnestly recommend to the attentive perusal of every farmer, a calculation of a similar nature will be found; but it is much more satisfactory, being more particular. He there proves that on 201 common fleeces, the grower will sustain a loss of six dollars and three cents, or three cents per fleece, whilst the same number of mixed merino fleeces will afford a net profit of 765 dollars; and, if the value of the sheep themselves, and of their lambs, be taken into consideration, there will then be a difference of upwards of 2600 dollars, in favor of the merinos. Another advantage, which must not be overlooked is, as has been already mentioned, that they are much more easily kept, and of course less expensive to the farmer. Every animal with which I am acquainted, I will venture to assert, will be found easy or difficult to fatten, precisely in that degree in which it may be well or badly made. A horse, for instance, having few defective points, will take on both flesh and fat more readily than one of a different and inferior structure. Of the common sheep I possess, one is conspicuous for beauty of form. She is always in better order than the rest, their chances being equal; and her lambs are for the most part the best I have. She last year nursed two lambs without any additional food, which are not inferior to any of the same age. Merino sheep, at least those that have come under my observation, possess every advantage in point of form. Compared with other sheep, they exhibit the same superiority that the thorough bred English bull does over the common scrubs of the country, and that they are really more easily kept, is no longer a matter of opinion. Lord Somerville, who has paid particular attention to this matter, asserts "that the same land which carried indifferently 45 long woolled sheep, maintained, in good plough, 150 ryelands, the lambs of which were weaned in good order. These lambs were summered on the same land, at more than twelve per acre; and although kept hard during the winter, the wethers fatted to sixteen pounds the quarter." Laurence observes, "in general, land worth a guinea per acre, will carry and keep in good store state, six and a half Spanish ryelands, from four to four and a half Spanish Southdowns, allowing turnips, pease, and hain in the dead winter months. The largest breed of Southdowns, are stocked in Sussex, at the rate of four per acre; of full blood merinos it will carry a proportionably greater number. They have been found very apt to take on both flesh and fat." "It is understood," says Colonel Humphreys in his letter already referred to, "that the merinos are more easily maintained and fattened than the taller and larger breed, inasmuch that there are persons acquainted with both breeds, who calculate that 200 of these small-boned and short-legged sheep may be kept in tolerably good condition, where 20 of the other would suffer for want." Tollet asserts "that one acre of land which will keep three Southdowns, (similar to our sheep) will be sufficient to keep four merinos." He adds what is worthy of great attention, "the produce in wool of the Southdowns, would be 13s. 6d per acre, that of the merinos 31 15s. 6d sterling." The common sheep cast their wool in the spring of the year, the merinos do not; this then is another advantage. The French, English and Swiss Agriculturists, have for particular purposes permitted the wool to remain on the sheep for two and even three years, without injury to the sheep or loss to the grower, for they then afford twice or three times the usual quantity of wool, and of double or treble the usual length. The same experiment has been tried by Mr. Ruthford, of New-York, with a 7-8 ram, and with similar success. From this, another advantage arises, which is certainly of importance, in a climate so variable as

ours; I mean the not being obliged to shear them at an unreasonable time. "Sheep are subject to colds and chills of the limbs," which always prove hurtful, oftentimes fatal. "The pelt rot," observes Mr. Livingston, "generally arises from hard keeping and much exposure to wet and cold, and in fact, the animal often dies in severe weather, from the cold it suffers by the loss of its coat;" and lastly they are less liable to disease. Poverty is the parent of half the diseases to which sheep are subject. If then merinos have a greater disposition to fatten than common sheep, they are of course exactly in that proportion more free from those distempers which have their origin in scanty food.

Before I put an end to this communication, let me persuade every farmer, if his circumstances will admit of it, to procure, as soon as possible, a full blood merino ram, if not, then one of the mixed breed, the higher the grade the better. By a single cross only, he will increase the value of his flock to an astonishing degree, and thus convert an evil into a benefit, since it has been proved that common sheep are not only unproductive, but really expensive.

I am sir, your obedient servant,

JOHN L. NORTH.

J. T. LEWIS, Esq. Corres. Sec'y.

A New Theory of Agriculture, in which the nature of Soils, Crops and Manures is explained; many prevailing prejudices are exploded. And the application of Bones, Gypsum, Lime, Chalk, &c. is determined on scientific principles, by W. GRIENTHWAITE.
(Continued from No. VIII. page 60.)

CHAPTER II.

ON SOILS.

Vague notions entertained of a soil by practical men. Definition of a soil. Practical applications. Improvement of soils. Tull husbandry as connected with soils.

We have already seen, that the processes of germination may successfully take place independent of soil, and that the soil, is only a convenient instrument by which those processes may be conducted on a large scale; we have also seen, that the causes contributed to vegetation, are susceptible of much modification from the soil through which they operate, and, therefore it becomes not only an interesting, but a highly important question, to determine the nature of that soil through which those causes may most successfully operate.

The term soil, like many others in familiar use, has never yet been accurately defined; it is applied as the significant expression for laid under cultivation, and this application of it is universal. The epithets with which it is adjoined, serve to distinguish particular qualities of such land, and in some instances, and of much importance, to confound the soil with substances which it contains; substances whose presence is not permanent, but accidental, which may be removed without producing any alteration whatever in it.

In one of the latest, and best digested works on practical agriculture, this is the view in which a soil is said to be commonly regarded. The words of the author are, "the surface or outward coating of land, usually consists of various earthy matters, with a mixture of animal and vegetable substances in a state of actual decomposition, together with certain saline and mineral ingredients. Where favourably situated, it is admirably calculated to afford support to plants, to enable them to fix their roots,

and, gradually to derive nourishment by their tubes, from the soluble, and dissolved substances contained in the soil (as the mixed mass is called) or passing into it."

This description of a soil, and enumeration of the purposes it serves in the economy of vegetation, are, according to the opinions entertained of them by practical agriculturists, as clear as they are complete. But they do not sufficiently distinguish its real, from its accidental character; at least, if they answer the received definition, it will be convenient to adopt one that shall be more precise; such a definition being, in reality, no definition at all. That which this year is a rich soil, may next year be a poor one. The very use of the epithets rich and poor, evidently imply, that there is something understood by the term soil, which is independent of those qualities.

Although a soil has, perhaps, never been considered in the manner here stated, yet it is of much importance to the practices of husbandry that it should be. A soil composed of clay, mixed with much decayed vegetable matter, and such are frequently found to exist in old forests, may be very productive for many years—but, in proportion as the vegetable matter becomes exhausted, the land will acquire greater tenacity and lose that friable property so favorable to the growth of annual plants.

Soil I should define to be, that mixture of earthy bodies which is calculated to furnish support to plants, and serves as a medium through which nourishment may be conveyed to them. There are but few agriculturists who believe that these are the only uses which a soil answers in the business of husbandry. They cannot separate the notion of active powers belonging to that object which is constantly present, where active powers must have existed. Hence a soil has been considered, as the above mentioned writer observes, "as the mother or nurse of vegetation, that discharges functions to plants similar to those which the stomach does to animals, in preparing their food, and fitting it for absorption by their roots."

Although a soil is entirely passive during vegetation, yet, by judicious management, it may be brought into such a condition, as will render it peculiarly fitted for promoting that process—whereas, by neglect, the same soil may be destitute of every requisite. This is a consideration sufficient to make the subject of soil, a question of importance, and a knowledge of its nature and uses, of considerable interest. The want of such knowledge, has led many practical men into serious errors. The results of one experiment have frequently been considered as affording sufficient authority for the adoption of practices, which would never have obtained approbation, had such experiment been understood in principle. In Wales, and in many parts of England, the chalking of land has been succeeded by abundant crops and luxuriant herbage. This success has encouraged a disposition to use chalk, where it might, *a priori*, have been pronounced, incapable of doing any good, but, might, probably, produce some mischief. It, perhaps, was never employed with beneficial effects to promote the growth of crops, although it may have been used to im-

prove the qualities of the soil; and how few have considered this operation of that substance so fully, as to be able to determine, where it could be used with a prospect of advantage.

To understand the uses of soils, is to know what is proper to be done for their improvement, and what will be the probable effects of substances, which are frequently added to them for that purpose. By attending to the preceding definition, many practices, approved as generally beneficial, will be found to be serviceable in particular situations only. Substances, which are now considered as acting as manures, will be ascertained to do no other good, than as they alter the texture of the land. Such has been shewn to be the case with chalk, and such might also be shewn to be the case with marl, with lime, with gypsum, &c.

When I state that a soil furnishes nothing to a plant, I wish to be understood to mean, that, in performing all the purposes and functions of a soil, it furnishes nothing. If chalk (carbonate of lime) form part of a soil, and also a part of the vegetables growing in it, then I consider the chalk in such soil to perform two distinct and independent offices—the one as a part of the soil, modifying its texture; the other as a manure, and contributing a necessary substance, to the plants that grow in it.

As a proof that soils, strictly speaking, furnish nothing to plants, it may be stated, that seeds have been made to germinate, and pass through all the stages of vegetation, in oxides of lead, in sulphur, and even in small shot, where, it is evident, they could derive no nourishment. These are facts very important to be understood, as they suggest the propriety of ascertaining, what substances are really beneficial to vegetation, by contributing to the formation of the crop—and what only serve the purpose of a medium through which those substances are transmitted to it. The latter suffers no change from any species of cropping whatever, whereas the former is, in part, exhausted by every kind, and, consequently, will demand a perpetual renovation.

The subject of soils has but two points of view, in which it can be considered by the agriculturist, with any prospect of advantage.—The first is, to determine the qualities of the best kind, and the second, to ascertain the best practical modes of improving those that are inferior.

A soil being designed to furnish support to plants, should be possessed of a certain degree of adhesiveness, or tenacity; this is almost always supplied by the presence of clay (alumina) but adhesiveness alone is not sufficient.—There is also required an opposite property, namely, friability, or looseness of texture, by which the operations of husbandry may be easily conducted; that moisture may have free access to the fibres of the roots, that heat may be readily conveyed to them, and that evaporation may proceed without obstruction. These are commonly attained by the presence of sand, (silica.)

As alumina possesses all the properties of adhesiveness, in an eminent degree, and silica those of friability, it is obvious that a mixture of those two earths, in suitable proportions, would

furnish every thing wanted to form the most perfect soil. In a soil so compounded, water will be presented to the roots by capillary attraction. It will be suspended in it, in the same manner that it is suspended in a sponge, not in a state of aggregation, but minute division, so that every part may be said to be moist, but not wet. This capillary attraction slightly resists evaporation, and thereby renders the humidity of the soil more uniform. The degree of this attraction, varies with the magnitude of the particles of earth, being stronger in proportion as they are smaller; hence one of the great advantages of a highly pulverised soil. The facilities that a soil so constituted, communicates to the action of water on vegetation, are also productive of other advantages of equal importance. It is not merely the accession of water that is needed for the successful growth of plants, but because water is the menstruum of manure; and it will be shewn hereafter, that manure is perfectly useless to vegetation, until it becomes soluble; and it would be equally useless in a state of solution, if there were not such a disposition in the soil, as to favour its passage to the roots in regular, and tolerably equal quantities.

Earths are also amongst the worst conductors of heat with which we are acquainted, and consequently, it would be a considerable time before the gradually increasing temperature of spring, could communicate its genial warmth to the roots of vegetables, if their lower strata were not heated by some other means. To remove this defect, which always belongs to a close, compact soil, it is necessary to have the land open, that there may be a free ingress of the warm air, and tepid rains of spring. There are other advantages also connected with the free circulation of moisture in a soil. Water is known to be a condenser, and solvent of carbonic acid gas, which, when the land is open, can be immediately carried to the roots of vegetables, and contribute to their growth; but if the land be close, and the water lie on, or near its surface, then the carbonic acid gas, which always exists in the atmosphere, and is carried down by rains, will soon be dissipated; as is evident from the experiments of *Henry*, and the remarks of *Watson*.

An open soil, besides being favourable to the transmission of nutriment to the roots of plants, is also favourable to the extension of those roots, and thereby enlarges the field whence the nutriment can be derived. Nor are these the only benefits resulting from a friable soil, for, in addition to its being best adapted to the purpose of supplying vegetables with food, it is also most suitable for effecting those changes in the manure itself, which are equally necessary to the preparation of such food.

Animal and vegetable substances, exposed to the alternate action of heat, moisture, light, and air, undergo spontaneous decompositions, which would not take place independent of it.

When all these reasons are considered, can it be at all surprising, that *Tull* should have fancied that no other assistances were required in the well management of the business of husbandry? By observing the constant and striking advantages, derived from keeping the land in a highly pulverised condition, he supposed

that nothing else was required to promote vegetation. Hence, he directed every attention to that object. The practice was good as far as it extended, but not being conducted upon principle, its views were not sufficiently comprehensive, and, consequently, its anticipations were frequently frustrated, and unmerited discredit was brought against the system itself.—Had he been acquainted with the uses of a soil in vegetation, he would not have been disappointed, because he would have moderated expectation. He would have discovered, that the pulverization of the soil, was of no other benefit to the plants that grow on it, than as it facilitated, the more speedy and perfect preparation of their food, and conducted the food so prepared, more regularly to their roots.

There is one particular of very considerable practical importance connected with soils, which it would be improper to pass over in this place. Amongst agriculturists, and in theories of agriculture, it has been an invariable custom to ascribe to particular soils, a peculiar adaptation of crops, and, as far as experience has extended, the opinion appears to have been confirmed. Clays are thought to be peculiarly fitted for the growth of beans, and wheat—chalk for peas, and clover. And light land, as better calculated for barley than wheat.

These are all fanciful distinctions, and have been serious impediments in the way of agricultural improvement. If we revert to the definition of a soil, which has been given in this chapter, we shall find that it has no reference whatever to crops. A soil contributes nothing to their formation, and therefore, provided the plants resemble each other in their relation to stability, the same soil, whatever it may be, will answer as well for one crop, as another. As this will probably be objected to by practical men, who seldom reason upon facts, it will be necessary to descend to a plain and simple exemplification of it.

It being my object in this place to shew, that lands, which are confined to the growth of inferior crops, may be employed in the production of those more valuable, I shall select for my purpose what is commonly considered a barley soil, which is generally composed of alumina, or chalk, and so much gravel, or sand, as to render it scarcely adhesive under any circumstances—and which is usually very pulverulent.

If to a soil of such a description, there be added as much manure as is necessary for the production of a crop of barley, and a crop of barley be produced on it, then, it is evident, that such a soil is adapted to the formation of vegetable matter; and, since the vegetable matter of all crops is the same, or composed of the same elements, it is obvious that such a soil would also be adapted to the formation of the vegetable matter of a crop of wheat. It is here that agricultural enquiry should commence.—We have before us the fact, that the land is capable of producing vegetation: if we required still further proof of that fact, such proof would be amply furnished in its spontaneous, and luxuriant production of weeds. Why, then, it may be asked, will it produce a good crop of barley, and not of wheat? If the soil were constituted in the best manner possible, it

would still contribute nothing to the formation of either the wheat or barley crop. Whatever either of those crops took up for that purpose, must be substances superadded to the soil: and why should those substances which, in one situation, or soil, can operate with success, not perform the same offices in the other? No reason whatever can be assigned. If it be asked, why such land has, experimentally, been found unproductive of wheat, and yet productive of barley, it may be answered, that the present system of agriculture, has left the successful growth of both to accident, and such accident has supplied the substances needed for barley, but not those required for wheat. If a practical farmer were asked, why such land would not grow as good crops of wheat, as it does of barley, it is probable that he would answer—it is too light, or, which amounts to the same thing, wheat prefers a stiffer soil. These are, it is obvious, no reasons at all, until it be shewn how the vegetable process of barley differs from the vegetable process of wheat or any other grain. I have never yet seen, nor heard of any fact that could establish the existence of a dissimilarity, in the manner of vegetable growth, from the first changes of germination, to the moment that fructification commences, that, could, with any propriety, be said to depend upon the soil. But after that moment peculiar substances are formed, and it is no longer a proof, because a certain soil, manured in a certain manner, has produced a particular crop, as barley, that it would also have produced any other, as wheat. So far from there being any proof that such indiscriminate production would take place, it is highly probable, independent of all experience, that it would not.

It is necessary that I should guard the reader from extending this reasoning too far. In endeavouring to establish the truth, that the same soil which has produced one crop may be made to produce any other, I do not mean to contend for the equality of all soils, as regard the purposes of vegetation; so far from it, that such a doctrine would be directly adverse to the opinions already advanced concerning the uses of a soil. An open soil will suffer more from the action of water, air, and heat, than one that is compact, and consequently will sooner be exhausted; but this subject will, with more propriety, be considered in detail, when treating on manures.

The definition that I have ventured to give of a soil may be objected to as purely arbitrary, and the etymology of the term may, perhaps, be adduced to shew that it is inaccurate.—With neither of these shall I find fault. Etymology may serve to settle the meaning of a doubtful term, but is a dangerous standard when referred to in order to fix the acceptation of those in daily use: those, which habit has modified, or necessity altered. If a soil be commonly understood to mean land in every state, and in every condition, I can only say, that, in this essay, I shall every where employ it to signify the earthy substances contained in the same, independent of every thing capable of furnishing a constituent part to vegetables.

Having endeavoured to explain the uses of soils, and the manner in which those uses are

performed, I shall proceed to offer a few observations on the mode of appreciating their qualities experimentally. The proof which the experiment that I am about to mention affords, is not absolute, but comparative; but might, by an attention to a few other circumstances, be rendered general, and independent. We have seen the vast importance connected with the free circulation of water in a soil. We have proved that on that free circulation depend its temperature, its capability of conducting nourishment to the roots of vegetables, and its adaptation to those spontaneous changes which are required to take place in manure in order to furnish this nourishment; if, therefore, the relative excellence of this property be determined, we shall also arrive at the determination of those others which depend on it. To effect this, an equal portion of two soils, perfectly dry, may be introduced into two tall glass cylindrical vessels, in the middle of each of which a glass tube is previously placed. The soils should be put into each in the same manner, not compressed very hard, but so as to receive a solidity approaching to that which they possessed when first obtained for trial. If, after this preparation, a quantity of water be poured into the glass tubes, it will subside; and the capillary attraction of the soils will conduct it up the cylinders towards the tops of the vessels. That which conducts it most rapidly, provided it do not rise from the weight of the incumbent column of water in the tube, may be pronounced to be the better soil.

The improvement of soils, when pursued upon scientific principles, is simple to understand, and when practicable, easy to accomplish; but when extraneous, and accidental bodies are conceived to form a part of the soil, there is not only much difficulty created, but also much uncertainty. One examination will not be sufficient; it must be the perpetual object of attention. That this is the case, may appear from what has already been advanced on this subject; but, in addition to that, I shall take the liberty of transcribing a short passage from *Sir John Sinclair's Code of Agriculture*, a work which may be considered the best, as it is the most common standard of reference by practical farmers. Speaking of sandy soils, he says, "their improvement is generally accomplished by fossil manures; but vegetable manures are likewise effectual. A top dressing of peat has been tried for that purpose, and the experiment was attended, not only with immediate good effects, but with permanent benefit." "That the vegetable manure, and peat, would render sandy soils more productive is reasonable to suppose, but such productiveness would be occasioned, not by improving the quality of the soil, but by furnishing the crops, growing in it, with nourishment. The permanency of effect ascribed to the peat may be questioned—peat is composed of a large quantity of vegetable fibre, mixed with a quantity of earth. All the former would become exhausted after a certain time, so that the whole of the permanent effect must be ascribed to the quantity of earth which remained; and that it is probable, would hardly be in such a quantity, as much to alter the texture of the soil. Hence, it follows, that the soil which has been improved by the addition of

peat, or vegetable manure, will soon require the same additions to be repeated; but the moment when required will not be known to the unscientific farmer, before he finds a deficiency in his crop. The permanent benefit will, however be found to prove exceedingly transitory.

Whenever a soil is too light, or sandy, it is obvious, that clay (alumina) is required for its improvement, and vice versa; and, sometimes, where clay is not procurable, chalk, or marl will answer a good purpose. When the soil is thus improved, as regards its texture, the easy operations of husbandry, and the free passage of water through it, every thing is accomplished that can be accomplished, as far as the soil is concerned.

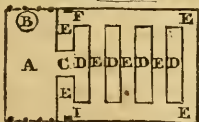
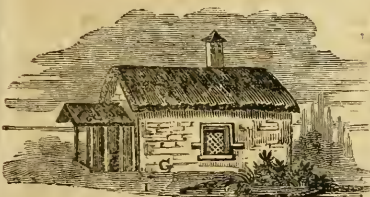
Chalk has been recommended as a substance calculated to correct the sourness of land. It would surely have been a wise practice to have previously ascertained the certainty of this existence of acid, and to have determined its nature, in order that it might be effectually removed. The fact really is, that no soil was ever yet found to contain any notable quantity of uncombined acid. The acetic and carbonic are the only two that are likely to be generated by any spontaneous decomposition of animal or vegetable bodies, and neither of these have any fixity when exposed to the air.

(To be continued.)

THE CONSTRUCTION AND MANAGEMENT OF

A DAIRY;

With remarks on Roots and Corn Crops;
Steamed Food, Chuffed Hay, &c.



ROSE VILLE, near New-Ark, (Del.) }
April 17.

MR. SKINNER—I now send to you, conformably to my promise, the plan of a Dairy, and I annex directions for the construction and management of it. The building should be twenty by sixteen feet, if you keep 30 or 35 cows.—The entrance should be dug two steps below the level of the adjoining ground, G. the whole width of the building, to form an area 16 feet by 7 A., which should be walled and paved with hard smooth brick—over this area should be a penthouse, or a roof supported by posts placed on the wall, and the eaves should project sufficiently to keep the posts dry; under this shed, or roof, all the work should be done, whenever even the thermometer stands as high as 55° of Fahrenheit in the dairy house, except skim-

ning the milk, which may always be done in the house. The warm milk from 30 cows strained into the house immediately after milking, would raise the temperature in summer too high, but this avoided by straining the milk out of doors and leaving it until the milking is all done, before any of it is set away. The walls should be at least 2 feet thick. There should be one window of four lights, of 8 by 10 inches, in each side and end, to make a draught of air in summer; when if flies are troublesome, these windows must be covered with millinet or fine wire to keep them out. A ventilator six inches square should be placed in the centre of the building, rise through the floor over the milk room, and project three feet above the ridge of the roof: this will cause a constant circulation of fresh air during the warm weather, which is of much importance, for quantity and quality of cream.—By shutting the glass and applying straw to the outside of the walls, stopping the ventilator, and having double doors, the dairy may be conducted through the winter with facility and profit. In the ground floor of the milk room, there should be the trenches E. E. E. E. E. E. which must be kept two-thirds full of water by having a gate I. of a proper height in the drain that conveys the water from the house; which gate, when the dairy is scrubbed and cleansed, as it should be once a week, may be raised to draw off all the water. The trenches for the milk-pans to stand in are to be sunk six inches below the floor, paved in the bottom, and curbed with bricks set on their ends; the water is to be introduced into the trenches at F. and may be entirely discharged at the gate I.—The floor D. D. D. D. should be laid with hard paving brick, in coarse, clean roasted sand, and previous to putting the sand in, a coat of tempered, tough, brick clay must be beat and packed all over the bottom sufficiently thick to prevent the water from escaping. A white oak board ought to be laid next the walls, fitted tight, and calked at the corners—this board is to be plastered to, like the wash or base board of a parlour, and the clay packed to the bottom of the board will make the floor as tight as a bottle. The gate I. by which the water is retained or discharged, is to be made in this wash board. My milk-house is lined with sheet lead soldered; the expense was very great and the house is no better than it would have been if built upon the preceding plan; for clay and white oak will last as long as the sheet lead. If I ever build another dairy it shall have two walls, with a six inch space between them, which shall be filled with pounded charcoal, and have a thatched roof two feet thick. An ice house should be built near to it that the water from the melting ice might be conveyed into the troughs or trenches. The temperature of such a building might be easily kept at 55° of Fahrenheit the whole year round. I would recommend white oak vessels for holding the milk, 9 inches deep and 20 inches diameter, such as bushel measures have to lift them by, and hooped with copper; for they will be found cheaper in the end than earthenware. A large boiler should be fixed on one side of the area A. as shown at B. that the milk pans may be boiled every time they are used. Some persons only scald them, but this will not do

to have rich waxey butter, that will keep in hot weather, every utensil used should be well boiled and scalded every time it is used. No branch of husbandry requires such constant and unremitted attention, and none has paid better.

Cows should be milked the first three months after calving, three times a day, and at each milking every drop should be taken from the udder; one pint of the milk last drawn from a cow is worth three of the first; the famous Rose butter of Ireland, is made entirely from what dairy folks call the strappings, or last drawn milk. The cows should have salt whenever they choose;—it should be placed in troughs and these be kept supplied with it, for salt will contribute more to the health of cows than all the nostrums extant. They should be kept clean and comfortable, warm in winter and cool in summer. By stall feeding and proper attention, they may be kept milking at least a month longer than when they are suffered to roam at large, annoyed all day by swarms of flies and the distressing heat of a summer's sun. I have kept with one acre of grass, six cows of about four cwt. each; they were all fresh calved, the grass was cut early in the morning, and as much as would last the cows until dusk hauled in a light cart and put into the barn entry; the night's feed I mowed just before sun set; they were fed at sun-rise, 10 o'clock, 3 o'clock, and just before dusk, giving no more at a time than they would eat. If the time one acre was cut and fed, the grass that was first cut had grown to a heavy sward and was cut again—the nature saved by this method would pay for all the extra labour attending this mode of feeding.—The cows were curried and kept as clean as horses are at a livery; at 6 o'clock in the morning they were turned out of the stable, and at 9 put in, at 5 o'clock again let out, and at milking time stabled again, where they remained until 6 o'clock next morning. In winter I fed the cows that give milk with cut hay, corn stalks, or straw and chaff steamed, and mixed with corn and cob ground together four times a day. Parsnips, carrots, mangel wurtzel and potatoes, are the best green winter food; I have no opinion of turnips; ruta бага is a little better, but I have seen cows and hogs nearly starved by being fed on them; of these a little fed to cattle in winter, that are kept on dry food, may be very serviceable, but from my experience I assert, that I can keep on the produce of an acre of land cultivated in corn, more cows and swine, than W. Cobbett or any braggadocio ever imported into the U. States, could upon the produce of the same acre if cultivated in turnips of any kind. The new milk of cows fed on turnips, is not as nutritious as the skim milk from cows fed as above directed, and the labour of churning turnip milk is labour in vain; for if you happen to get butter after churning a day or two it is miserable stuff and not entitled to the name of butter. Sheep and dry cattle are benefitted by having a small mess daily of any green food through the winter, but fed on turnips as Cobbett recommends, they scour and become weak. Swine should have all their food steamed or boiled, and working horses fed on boiled grain and steamed hay, will keep in the same order on half the weight of food which

they require when given in a raw state. I have made minute experiments on feeding hogs, and am certain that one half the quantity of boiled or steamed food will suffice to fatten a hog, or any animal without a cull, that it requires when given in a raw or natural state. Steam food must be given when cold. By simply cutting hay or straw, and feeding them dry to horses and cows, they will go a full third further than feeding them wet and from racks as is common. But it is time to conclude this desultory epistle, which I will do, by wishes for your success. Accept the assurances of my respect.

THOMAS MASSEY.

THE FARMER.

BALTIMORE, FRIDAY, MAY 25, 1821.

☞ **LOSS BY FIRE.**—The Editor has occasion to announce the destruction of several hundred sets, of this Journal, by the conflagration of a bindery where they had been sent to be bound. The positive loss is extensive and the accident very embarrassing in many ways.

Many subscribers had sent their second volumes to the Editor to have them bound, and these had been committed for that purpose to the same hands which were entrusted with his own, and all shared the same fate. In some other cases the money had been remitted for the three volumes, and we were only waiting for the binding to be completed to send the books.—To such persons we offer either to return the money or to hold it in payment for the work as soon as another edition can be struck off; arrangements will be made to accomplish this immediately. In the mean time we appeal with confidence to every gentleman who permits his name to remain on our list, to examine the state of his account. Some have neglected to comply with the express stipulations under which they subscribed to our work, and by such we hope this call will be immediately attended to. The profits of more than two years of much solicitude and hard labour, consisted in our extra copies of the Farmer, and these have all been destroyed. It will cost several thousand dollars to reprint them, but the expense will be greatly diminished if our present subscribers by paying up what they owe, will enable us, as has hitherto done, to have the work done as cash prices—we sincerely trust that this general notice will save us the necessity of a demand in individual cases; we embrace this occasion to request that our friends will use their influence to obtain for us additional subscribers—a more extended correspondence and accumulating materials, will enable us to continue the American Farmer with undiminished usefulness, to the great interest for which it was established.—PROVIDED ALWAYS THAT, ☞ subscribers are punctual in their payments.

☞ THE CATTLE SHOW AND FAIR.

We have reason to believe that there will be an immense concourse of Farmers from this and the adjoining States, at the Cattle Show and Fair, which is to take place at the Maryland Tavern, four miles from town, on the Frederick turnpike road, on the 7th and 8th of next month, (June). The exhibition of live stock, will far exceed any thing of the kind which has hitherto occurred in this state—and besides those brought as candidates for Premiums, there will be many brought, of different species, for sale. It is to be hoped that Farmers will not be too backward in bringing their Stock, to this first exhibition. It cannot be expected that in the commencement, great perfection will be attained, but every one ought, by way of encouragement, to bring along whatever they have that is any way meritorious.—Should this first attempt go off well, it is difficult to estimate the great advantages that would accrue to the State, and to the Agricultural interest at large from these semi-annual Fairs—an immediate im-

provement of every kind of domestic animal will ensue, and a knowledge of the best modes of cultivating all sorts of produce, will be disseminated. It is not going too far to say, that the agriculture of the middle states, will be seen to advance instantaneously towards that point of perfection which has been, by similar means, accomplished in the eastern States.

When it is considered that the annual contribution by the members of the Society will not exceed \$2 or 3 per annum, it cannot be doubted that all who attend at the fair will enroll their names as members. The greater the funds, the larger and more numerous the premiums, and the more complete will be the future arrangements for conducting the fairs. The funds for the present occasion were contributed by the generosity of a few individuals. For the use of all stock brought for exhibition, food may be procured on the spot at a very moderate rate, and every effort will be made by Mr. Stone, the occupant of the Tavern, to give general satisfaction. He will however have to crave some allowance on this first occasion, as it is difficult to calculate, until after the first meeting, what will be the number that will probably attend.

Horses and mares must be exhibited under the control of the bridle, and the owners of neat cattle, should be prepared with halters to fasten them while under an examination. The necessary pens will be provided for the safe keeping of whatever is brought.

It is highly necessary that the committee of arrangement should attend on the ground punctually at 9 A. M. on each day of meeting, and all persons willing to become members of the society, are requested to give notice thereof on or before the first day at noon.

☞ **CHOICE STOCK**—selected by the Editor of the American Farmer to improve the live stock of our country—from the best materials to be had for that purpose.

HORSES.

CLINTON—A full blooded Stallion from Virginia, said by Col. Taylor to be "equal in pedigree on both sides to any horse in America," covers at \$13 cash, stands at Caton's mill on the Fall's turnpike 9 miles from Baltimore, on Mondays and Tuesdays; at Bausman's 14 miles out on the Keister's town road, on Wednesdays and Thursdays; and at the Maryland Tavern 4 miles out on the Frederick road, the rest of the week.

YOUNG TOM—was got by Judge Winchester's old Tom, bred by Cornelius Howard, Esq. covers at \$3 cash, days and places same as Clinton.

ASSES.

JACK, SANCHE—14 hands high, imported from Malta, proved to be a very sure getter of uncommonly large mules, covers at \$3 cash, and stands altogether at the Maryland Tavern.

BULLS.

MARK ANTONY—full blooded Alderney, is let to cows at \$3 each and stands on a vacant lot near the Medical College on Lombard Street. This breed is remarkable for the richness of their milk; also a superb Teeswater Bull of beautiful form, weighing 1410 pounds at 22 months of age, is let to cows at \$3 each, at the place where he will be fed and taken good care of at the rate of \$1 per week.

PRICES CURRENT.

Flour, from the wagons, \$3 87½ a 4—Whiskey, from do 24 cents per gallon—Hay, per ton \$19—Straw, 7 to \$8—Wheat, White 80 to 83 cts—Red, do 76 to 79—Corn, 30 to 31: one parcel prime yellow raised by T. B. Hynson, Esq. of Kent County, sold at 32—Oats, 23 a 25—Rye, 40—Barley, 25 to 30 per bushel—Cold Fish, per quintal, wholesale \$3, retail ditto \$4—New-England Beans per bushel, \$1 12½—ditto Pens, 75 cts—Plaster in stone \$6 per ton—do ground, \$1 35 per barrel, 33 cents per bushel, \$8 per ton—New Orleans Sugar \$9 to 12 \$50—Muscovado, do \$7 50 to 9 25—American White Lead, \$12 50—Ground, do \$13 a 14—Lined Oil, 75 cts—Feathers, 40 to 45 cts—Potatoes, per bushel, 62½ to 75 cts—Shad,

new, \$6—Herrings, \$2 to 2 23, declining—Fine Salt 50 per 100 bushels—Ground Alum do 46 to 48—St. Cbes, 50—Cadiz, 50 to 53—retail do.—Turks' Island, 75—Cadiz ditto, 60—Live Cattle, 5 to \$5 50—Beef, 3 to 10 cts—Hams, 10 to 12 cts—Middlings, 10 cts—Butter, 20 to 25 cts—Eggs, 12½ cts—Cheese, 8 to 10 cts. pr lb.—Tar, \$1 50—Turpentine, \$1 87½ to \$3—Pitch, \$2½; Roan, common 1½, bright do. \$3 per barrel.—Varnish, 25 cts—Spirits turpentine, 33 cts per gal.—Cotton, good Upland, 13 a 15 cts. very dull—Rice, 3 a 3½ cts.—ship and flooring Plank, \$25 to 27 Shingles, best 63, to 77, com. \$3 to 43 p. M.

Maryland Tobacco.—Eastern Shore, first quality, 4 to 6; Potomac, first, 4 to 7, second, 2 to 4; Patuxent, first, 5 to 10, second 2 to 4; Wagon Fired, good, 9 to 12; fine, 12 to 14, very fine, 15 to 16. Virginia Tobacco.—A few hds. Richmond, good quality, at 7 dolls 75 cents.

☞ **WANTED TO PURCHASE.**—A roller for farming purposes; it should roll about ten feet; one of cast iron, would be greatly preferred. Enquire of the Editor of the American Farmer.

SEEDS, &c. &c. &c.

JOSEPH P. CASEY,

No. 2, Hanover St. HAS JUST RECEIVED, FROM the HAGUE, a variety of seeds, for this season; including, THREE MABLED MANGEL WURTZEL; Brunswick. Large Amsterdam, Cattle, Flat Dutch, and Drum Head Cabbage; Long Green and Pickling Cucumber; Leyden Cauliflower; Flanders Celery; Large Cattle Carrot, and Parsnip, yellow Norfolk Globe, and Ruta Baga; Turnip seeds; a few bushels of seed potatoes, ready for planting, &c.

C. has for sale a variety of Garden Tools, with handles in them. Flower seeds and roots fit to plant and sow at this season. Bird seeds of sorts at 12½ cents per pound. English split peas. Books on Gardening, Botany and Agriculture. Wood's Freeborn Patent Ploughs of sizes. He has a few pounds of good Lucern to close sales, which will be sold for cost—double twilled English 7 bushel bags.

☞ A second hand Ox Cart, a large triangle Harrow, Turnip Drill, and Roller; to close sales will be sold cheap.

Just Published and for Sale.

A TREATISE

On the Culture and growth of different sorts of Flower Roots and Green House Plants, kept in rooms, &c. to which is added a Table of the Linnean classes of Botany, with their orders and examples—by

JOSEPH P. CASEY,

2 Hanover-street

The treatise now presented principally to the notice of ladies, is the result of twenty years personal experience in the culture and management of plants, and is intended chiefly for those who keep plants in rooms and have flower gardens in or near towns; the author flatters himself that it will also be found useful to the public at large, as it contains many valuable hints shewing the best method of propagating the different sorts of plants therein treated of. The above will be sold, or exchanged for books on gardening, botany, agriculture, chemistry or rural affairs, on the lowest terms.

Jack For Sale.—Price \$700.

HE was purchased at Majorca, and imported last Spring by an officer of the Navy, was selected by competent judges, and is from the finest stock on that island, where this species excel. He is now, although only five years old, about fourteen hands high; his color a dark brown, or black, with white muzzle; his size the largest ever known in the Boleoric Islands, whose race is uncommonly large and full of bone. Mules produced by jacks of this breed, are commonly 15½ hands high, frequently 16. For further particulars apply to the Editor of the American Farmer.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua si bona norint
Agricolae." VIRG.

VOL. III.

BALTIMORE, FRIDAY, JUNE 1, 1821.

NUM. 10.

AGRICULTURE.

A New Theory of Agriculture, in which the nature of Soils, Crops and Manures is explained; many prevailing prejudices are exploded; and the application of Bones, Gypsum, Lime, Chalk &c. is determined on scientific principles, by W. GRISENTHWAITE.

(Continued from No. IX. page 68.)

CHAPTER III.

ON MANURES.

Importance of the subject.—Analogy between plants and animals.—Definition of manures.—Enumeration of manures.—Fermentation.

In the theory, as well as in the practice, of agriculture, the subject of manures is not only the most important, but the least understood.—Every operation of husbandry, every preparation of land, is calculated to render manure efficacious in its application. It is in vain that the soil is composed of the best substances, in the best proportions; that when so composed, it is kept in the best possible condition for vegetation, unless manure be added to it of such a kind, and in such a state, as is favourable to the growth of plants. In fine, it is that part both of the theory and practice of agriculture upon which every other may be said to depend. The ploughing and harrowing of land; the exposure of it to the frost of winter; irrigation and draining, are all regarded as important, only as far as they adapt it to the reception of manure, and are calculated to render its uses in vegetation more serviceable.

It is an unfortunate circumstance in this department of agriculture, that the same dependence has been placed on experience, unassisted by science: and observation, too limited for general conclusion, that I have had occasion to complain of, when treating on the subject of soils. Where the shepherd kept his flock, he might afterwards witness more luxuriant herbage, than in situations apparently similar, but, where they had not been kept. This and many other accidental occurrences would soon satisfy the mind of the most negligent and incurious, that the productiveness of the soil might be greatly assisted by artificial means. Without theory, or principle, he would seize on every instance of successful vegetation, and endeavour to imitate the means that had rendered it so. He would collect leaves, and store the dung of his animals, and thereby accomplish much, although he would leave many important resources entirely disregarded; but this, his first step, would be an advance so far in the practice of husbandry, that it would see nothing excelling itself for many centuries; even now, little, very little more is done than was thus accomplished by the first rude improvements of uncivilized man.

The probable reason why so little knowledge has been acquired concerning the manner in which plants derive nourishment, may be found in the obscurity of the processes of vegetation: every thing is done imperceptibly to human sense; the roots are silently and incessantly at work, absorbing the soluble substances in the soil, whilst the leaves are constantly performing the same functions, unperceived, in the air. Observation can detect nothing. It required much patient investigation, and many well directed experiments to be made, before these powers, and offices of the roots and leaves were discovered. It was not the practical man that explored the secret recesses of vegetation, or attempted to develop its laws. It was philosophy, with its complicated apparatus, and its comprehensive views, that led men into the laboratory of nature, and explained the manner in which she conducts her operations. The results to her labours, have unfolded many truths of the greatest importance to agricultural practices; amongst which that of the preparation, and adaptation of manures to purposes of husbandry, is not the least.

The analogy which has been confessed to exist, in many respects, between animals and vegetables, is, perhaps, in no particular more striking than in that of deriving nourishment for subsistence, and growth.

The first changes which take place in the germination of a seed, as have been already observed, consist in the abstraction of a quantity of its carbon, by the oxygen of the air. In the same manner respiration in animals consists, in the abstraction of a quantity of carbon from the blood. In both cases heat is generated, and the same products formed. In the stomach of animals the food undergoes such changes as render a great proportion of it soluble, which is a property indispensably necessary, in order that the delicate capillary vessels, called lacteals, and which open into the prima via may be able to take it up for the nourishment of the body, and for glandular secretion; so the earth may be considered the stomach of vegetables; and the fibres of the roots as vessels performing offices analogous to those of the lacteals in animals. They can absorb nothing but what is in solution, in that state must be presented the pabulum of life, and the substances from which glands, or similar organs, form, or secrete the various vegetable bodies with which we are acquainted.

When a parallel like this can be traced between two operations, although it furnish only probable evidence when carried further than observation reaches, yet it is a mode of reasoning allowed by the most rigid logicians, where more direct, and positive evidence cannot be attained and it is highly conducive to the extension of scientific knowledge; suggesting enquiry, and directing our views, in the prosecution of it. In

the course of this chapter, I shall have occasion to pursue the analogy between animals and vegetables a little further than I have done in this place.

Before I proceed to make any remarks on the subject of manures, it will be convenient and proper, to define what is to be understood by that term. In this instance, I believe, the vulgar notion is not so much at variance with philosophical truth, as in many others. Every thing which contributes to promote the growth of vegetables, may be considered as manure.—The practical man regards every indiscriminate kind of refuse matter as manure, but that opinion, a very little reflection, will shew to be incorrect.

Although the agriculturist has fancied every species of refuse matter to be manure, yet he is willing to acknowledge, that it is not always in a suitable condition to put upon the land, but frequently requires a previous preparation. It is rather surprising that this circumstance never started in his mind the consideration, whether all the substances which he is now pleased to call manure, are capable of undergoing such preparations, and, if not, whether they have any value whatever, when so employed.

Every species of matter capable of promoting the growth of vegetables may be considered, as has been already observed, as manure; and we shall find, on examining the constituents of vegetables, that they are composed of oxygen, hydrogen, carbon and nitrogen, or azote, with a small proportion of saline bodies. It is evident, therefore that the substances employed as manure, should also be composed of these elements, for unless they are, there will be a deficiency of some of the elements in the vegetable itself; and it is probable, that such deficiency may prevent the formation of those substances within it, for which its peculiar organization is contrived, and upon which its healthy existence depends.

This may, perhaps, explain the cause why soot has sometimes been found to afford very little nourishment to vegetation, it consisting principally of carbon, uncombined with oxygen and hydrogen. It therefore, could contribute only one of the elements of vegetables, where three, at least, were wanted. This affords us an example in which chemistry is of great utility in explaining the physiology of vegetation; and, as will be shewn hereafter, in adapting means to render agricultural processes more certain.

The elementary bodies above enumerated, namely oxygen, hydrogen, carbon, and nitrogen, or azote, are all contained in animal, and the three first in vegetable matters. Sometimes vegetables, though very seldom, contain a small quantity of nitrogen. As certain salts are also constantly found to be present in healthy living vegetables, manures may, consequently, be distinguished into animal, vegetable, and saline

It seldom happens that vegetable matter is employed as manure, except as it may, accidentally, form a part of what is collected in the farm yard, and perhaps, the leaves of trees, which are gathered in autumn. Undecayed woody fibre, or substances containing it, are not considered to be suited to the purposes of manure before they have undergone a kind of decomposition, by which continuity is destroyed, and a soluble, pasty matter is obtained. Hence the formation of dung heaps, which are, perhaps, as now conducted, the most serious enemies of the agriculturist.

The object of this decomposition is, as has been stated, to produce a soluble out of an insoluble substance; and the process by which it is effected is called fermentation; which it resembles so far as it consists in the spontaneous formation, and extrication of carbonic acid gas, and the generation of heat. It ought to have been remembered that of the substances most disposed to fermentation, those which are soluble, are most susceptible of it, and, consequently, if such a process have a tendency to produce soluble substances, it has also a tendency to destroy them. According to the experiments of *Lavoisier* and *Thenard*, one hundred pounds of sugar, and ten pounds of yeast, yielded no more than about fifty-eight pounds of alcohol, and six pounds and a half of residue, after fermentation; so that when the water contained in the alcohol, and which could not be separated, is deducted, we may infer, that full half of the original materials were lost or destroyed. A part of the loss consisted of thirty five pounds of carbonic acid gas. Hence it appears how injudicious is the plan of fermenting manure, if the fermentation resemble that just stated; not only in the absolute loss sustained, but because the carbonic acid gas, if disengaged during the processes of vegetation, is peculiarly adapted to aid that process; being soluble, and therefore capable of being absorbed by the roots; being ærialiform, and therefore may be taken up by the leaves.

We know but little of the nature of those changes which take place during the spontaneous fermentation of a dung heap. Whether the products be soluble or not, or volatile, or fixed, have not yet been discovered. But, however ignorant we may be of those changes, no one can deny that they should be well understood by the practical farmer, for upon them depends the success of one of the most important departments of husbandry.

I have stated that all kinds of manures consist of substances that possess the distinctive properties of animal or vegetable matter, excepting a few, which are saline. As those substances are seldom employed in an unmixed condition, it is probable that the nature of those changes have, in consequence of that circumstance, been less attended to. When a variety of materials are blended together, and any spontaneous alteration is observed to take place in them, it is a difficult thing to assign the cause of such alteration. The particular substance which induced it, or whether it was occasioned by the united influence of all, as it is not very apparent, so it excites but little enquiry. Observation could not discover much,

theory can explain more; but that that theory may afford all the information possible, it will tend very much to facilitate our progress, if we consider the nature of those spontaneous changes, which animal and vegetable substances undergo, the products they form, and the manner in which those products are likely to conduce to the purposes of vegetation.

Animal substances, are composed either of fibrin, as in the muscles and blood—gelatine, as in cartilage and bone; or coagulated albumen, as in nails, skin, hoofs, &c. The constituents of those several animal substances, are not very different in their proportion; and in their nature, they are precisely the same. Gelatin is composed of

Oxygen	27.2
Carbon	67.88
Nitrogen	10.99
Hydrogen	7.9

Fibrin of

Oxygen	19.68
Carbon	53.36
Nitrogen	19.93
Hydrogen	7.2

and Albumen of

Oxygen	23.87
Carbon	52.88
Nitrogen	15.7
Hydrogen	7.54

If we suppose the first of these to undergo a spontaneous change in the arrangement of its constituents, without the superaddition of any other extraneous substance, we shall find, that there might be formed, out of every hundred parts of gelatine about twenty of ammonia, twenty-seven of carbonic acid gas, twelve, and eight-tenths of carburetted hydrogen, and forty-one parts of carbon; the last of which would remain behind, in a state of extremely minute division.

That these changes do take place to a certain degree, has been proved by examinations of the products which are spontaneously evolved.—*Sir Humphrey Davy* discovered in the gasses extricated from a common dung heap, a quantity of carbonic acid gas, carburetted hydrogen, ammonia, and acetic acid: the last of which, it is probable, was furnished by the vegetable matter of the heap. It here appears evident, that if the process of fermentation be allowed to proceed uninterrupted, in animal substances, as long as it is capable of proceeding that sixty per cent of the whole weight will be dissipated, leaving but forty per cent as nourishment to vegetation, and every grain of that forty insoluble; but its being in a minutely divided condition, renders it capable of entering into combination with oxygen gas, &c. to form soluble compounds with greater facility than it would have possessed in a state of aggregation.

These would be the consequences of fermentation conducted to its extreme length. It probably never reaches so far; when it does, there is found remaining behind, a kind of black mould. That, in common practice, it is carried a great way, is obvious, from the blackness of some parts of a dung heap, when it arrives at that state which the farmer calls well rotted. The blackness can proceed from nothing

else, than the evolution of the carbon of the substances contained in the heap: every pound of which indicates the loss of one pound and a half of other substances, of the highest importance to vegetation.

We have seen what loss is sustained during the fermentation of one vegetable substance, and it is probable, that there is not less lost in those which form the constituents of a dung heap.—These are reasons sufficiently strong to discourage the practice of allowing dung heaps to ferment, and rot without interruption. It appears that public opinion has slowly adopted the decisions of chemical reasoning, and pies have been formed with a view to save what was before lost; a stratum of mould, sustaining the heap, being placed to receive the fluid parts, and a covering of mould being applied to prevent the dissipation of the aerial, or gaseous products. These purposes and contrivances, unfortunately, like many of the other operations of husbandry, were not directed by scientific knowledge. To cover is so commonly believed to confine, that there is no wonder, that the practical farmer adopted it in this instance from such a consideration. But it is in vain—the elasticity of the gasses generated, is such as no covering whatever could possibly confine.—If it were perfectly compact, it could only preserve as much carbonic acid as is equal to the volume, or bulk of air within it; a quantity too inconsiderable to be regarded, could it even be saved; but every particle of it must be disengaged and lost when the covering is removed.

It having been determined that no substance can act as manure unless it be soluble, and in a state of solution, it is proper that we should be acquainted with those which are naturally so; those that by a spontaneous, or artificial change in the proportion of their constituents, may be rendered so; and the best means that can be employed to effect such change.

Amongst the animal substances, that are commonly employed as manure, there are none besides those of the farm yard; and they, it is probable, can undergo no change capable of improving their quality. Of those that may be occasionally employed, such as fish, the refuse of the whale blubber, bones, rags, &c. which are composed of the substances already enumerated, either a spontaneous change in their constituents must be allowed, or it must be encouraged, by artificial means.

It is well known, that fibrin, by the action of nitric acid, is converted into gelatine; in which experiment, it is probable, that little change is effected more than what is produced by the oxygen of the acid: and, if so, perhaps the action of air, and moisture, might occasion the same. Similar results have also been found to take place with coagulated albumen, and, it is most likely, from the same cause.

Fibrin has been found converted, under peculiar circumstances, into a fatty substance, which *Fourcroy*, who examined it, as discovered in the graves of the burying ground, *des Innocens*, called *adipocere*. The same change has been effected by immersion in a running stream. In both cases it resembled spermaceti and possessed all the properties of a concreted

on. Whether such, or equally efficacious processes could be generally adopted, or whether they would be accompanied by a loss that would render it unprofitable, has never, I believe, been determined.

They are too little understood, to be recommended for general adoption; but there are others with which we are better acquainted, and which are more within the limits of practical husbandry.

Most animal substances are soluble in caustic alkalies, and what the alkalies effect completely, some of the alkaline earths can accomplish in a less degree. This is particularly the case with lime, which, it is well known, will accelerate the dissolution of animal bodies. The nature of this action, has never been satisfactorily explained. I was induced to try the following experiment in order to determine, whether the alkalies, and, if so, probably the alkaline earths also, act upon animal matters, in the same manner as they do upon several metallic peroxides, namely, that of abstracting from them a portion of oxygen. That this is not the case, became evident, when, instead of a pure, caustic alkali, I employed either a hydrosulphuret, or a hydroguretted sulphuret, for then no action whatever took place, which would have happened more readily, if the action of the alkali had been referable to its deoxygenizing power. Since the caustic alkali acted very powerfully, and the hydrosulphuret, as well as the hydroguretted sulphuret produce no sensible effect, it appears not improbable that the sulphur, which is always to be found in coagulated albumen, and perhaps in fibrin, may be the bond of union that holds the other constituents together. If so, the first spontaneous change which those substances undergo will be to form sulphuretted hydrogen gas, which will escape; a loss of considerable importance, if those substances be contained in the manure designed for the turnip crop, as will be seen hereafter.

From what has been already advanced concerning the nature of animal substances, as they are found in farm yard manure, it is obvious that little artificial assistance is necessary to adapt them to the purposes of vegetation.

Another inference of considerable moment, may also be drawn from the preceding observations, namely, that as such substances cannot be altered in their properties with any advantage, and they are constantly undergoing alteration, that such change may be detrimental to the interest of the agriculturist. Perhaps it may be said, that if the animal matter of farm yard manure, does not itself improve by being mixed with the straw, and other vegetable substances there found, yet such a mixture is calculated to accelerate the decomposition of those vegetable substances. This I believe to be true with respect to soluble vegetable substances; that it promotes their alteration, is confirmed by the authority of *Dr. Pringle*.—But we have no experiments to sanction the conclusion, that insoluble vegetable matters are aided in their decomposition by such admixture. Moist hay undergoes fermentation independent of animal matter; and, it is probable, that moist straw would also; and if so, how advantageous

must it be to collect, as is done in Flanders, all the fluid drainings of the farm yard, and to preserve all the animal matter in such a state, as shall most completely resist decomposition.

It is probable, that if the views of the agriculturist, instead of being confined to one crop, were directed to improve the general quality of the soil, as regards vegetation, that many practices now disregarded, would be then adopted, much that is lost would be saved, and the whole business of husbandry be rendered at once more simple and economical. In confirmation of this opinion, it is only necessary to state, that land manured with chips of wood, became, after the elapse of three or four years, exceedingly productive, in which time they had undergone a decomposition; and the fertility remained until the eleventh year. If a small quantity had, annually, been added to the land, its condition might, probably, have been perpetuated. It is on this principle that woolen rags are employed on the hop grounds of Kent; and it is from this cause, that the recently broken up forests of America, are so rich in vegetable manure.

This plan of employing manures that are not susceptible of a speedy, spontaneous decomposition, and which are never subjected to that process without sustaining a loss of full half of their weight, might I think, under judicious management, be made to promote the interests of the farmer. The immense addition it would make to the quantity of his manure, is a sufficient reason to justify its being tried.

That the preceding object has been much disregarded, or little known, is obvious from the practice generally adopted of burning weeds, and sometimes paring and burning land preparatory to cropping. That such practices should be followed in the nineteenth century, is not a little surprising; but, when the inconsiderable progress which Agriculture has made in principle, is known, the surprise ceases.

However glad a farmer may be to free his land of weeds, where they do injury, he should not neglect to employ them afterwards in that manner that may make them restore, with ample interest, the whole of what they had collected from the soil. Weeds are composed of the same elements as other vegetables, and it is only whilst vitality pertains to them, that they can do any mischief to the processes of vegetation. To burn them is to annihilate them, at least as far as they concern the farmer; but if, instead of burning them, they were heaped together with a small quantity of caustic lime, or even mixed with the collection of the Farm Yard, they would make a useful addition to the stock of manure.

In the same manner, the surface of land, which is now recommended to be pared and burned, in order to be brought into a state fit for cultivation, might be managed so as to accomplish equally well the object desired, and in addition to produce an immense quantity of vegetable manure, which is now voluntarily destroyed. The surface of such land consists principally of vegetable matter, every hundred parts of which by the operation of burning is reduced to less than ten, and consequently ninety parts are lost, every one of which might have proved beneficial to land in want of vege-

table manure. The operation of burning the surface, if it were collected, and used in the preparation of composts, in the manner lately recommended, and experimentally approved, with peat moss, in Scotland, there is no doubt but the advantages would be so great, and obvious, as to discourage altogether this most injudicious practice.

As this practice is, probably, not generally understood, it may not be altogether improper to give a brief account of it in this place. "After the peat is cut, and dried, it is fit for being made into manure, which is thus effected. A stratum of peat, of six inches in thickness, is covered with a stratum of dung ten inches in thickness; then six of peat, then four or five with dung, then another thin layer of dung, and then the whole is covered over with peat. In mild weather seven cart loads of common Farm Yard dung, are sufficient for twenty-one cart loads of peat moss, but, in cold weather, a larger proportion of dung is desirable." If the surface of land intended to be burned, be employed in the same way that peat is here used, there can be no reasonable doubt, but equal advantages would result from the practice.

Paring, and burning have been approved from the supposed value of the ashes left after such an operation, but the approbation will be much diminished, when it is remembered, that burning adds nothing to those ashes; that it removes all the oxygen, hydrogen, and ninety-nine parts out of every hundred of carbon; and the saline bodies discovered in the ashes existed before in the entire vegetable. If the land, where the turf is cut, be already so provided with vegetable manure as to spare, with advantage, all that is commonly consumed by burning, yet it is more than probable that several other portions of land, in its neighbourhood are deficient in it, and therefore, it might, after previous preparation, be transferred, with great benefit to such land. This is an improvement in Agricultural practice which will certainly be adopted whenever it is properly understood.

(To be Continued.)

The SHEEP of Peru

Are exceedingly valuable, and ought to be introduced into the UNITED STATES OF NORTH AMERICA.

NEW-YORK, April 28th, 1821.

SIR,

As the time appears to be fast approaching when the intercourse between Spanish America and the civilized world will be no longer impeded, by those unnatural and barbarous restrictions which the policy (or rather the impolicy) of Spain has hitherto imposed, and as the greater part of the Southern Continent of America will probably, in a few years, be entirely freed from the political control of Spain, every thing relating to the animal, vegetable and mineral productions of those regions will become every day more interesting, and as the intercourse with those countries and the United States will be steadily augmenting, there is no doubt in my mind, that many of the choice productions with which nature has gifted the great Continent of South America, and which have

so long been shrouded in obscurity, will shortly be brought to light, and that instead of the precious metals, constituting the great object of mercantile speculation to those countries; our enterprising citizens will speedily discover other objects equally, and perhaps, far more important than any hitherto known to the commercial world.

The present observations will be limited to one of those new objects, viz.—*The introduction of Peruvian Sheep into the United States*. I venture, without any hesitation, to assert, that the individual, or individuals, who succeed in first landing in the United States, a pair of the sheep hereafter described, would not only be compensated in a pecuniary sense, equal to their most sanguine expectations, but would render a greater service to our country than if they introduced all the mineral wealth of Peru.

The Spanish government as well as the Spanish writers, have contributed to spread a vulgar error respecting these sheep. They have stated that two of the species cannot be domesticated, and that the other two species which are already domesticated in Peru, will not thrive or procreate when removed from their native regions. The subsequent remarks, we hope, will destroy all doubts on this subject.

I have conversed with many intelligent South Americans, have perused several interesting manuscripts and publications respecting

these Peruvian sheep, have seen the four species in various situations, and have not the least doubt that they can all be domesticated and brought from Peru to the United States, where they will find a congenial climate and food in the mountains of every state in our union.

The best treatise I have seen on these sheep, was published in London, in 1818, by William Walton, Esq. and as the facts therein contained, correspond in essential points with what I have gathered from personal investigation, and the manuscripts before alluded to, I shall avail myself of Mr. Walton's treatise for many of the facts contained in the following description of each of the species of Peruvian sheep, recommending to those who may wish a more minute description of these beautiful and interesting animals, to send to England for Mr. Walton's publication on the subject.

It will give me much pleasure should this brief account awaken the attention of our agricultural societies, of our public agents in South America, and of our merchants trading to those regions, because I feel persuaded that the more the subject is examined, the greater importance will be attached to it, and I flatter myself that in a few years hence, these Peruvian sheep will be introduced and spread over our country, in the same manner as has already taken place with the Spanish Merino, and other foreign breeds.

WILLIAM DAVIS ROBINSON.

THE LLAMA.



The ordinary stature of the Llama is from four to four and a half feet in height, and from three and a half to four feet from the pit of the chest to the rump—they sometimes have been seen at Casco, upwards of five feet in height.—From the manner the Llama carries his lofty head, and habitually stretches his neck, he appears taller than he really is.

The one now exhibited at Piccadilly, in London, is only about three feet ten inches in height—and although cramped by confinement, deprived of his native climate and congenial food, yet it is found that his wool has improved, having much less hair mixed with it, than the first time it was shorn in England.

The Llama is the largest and most robust of

the four species of Peruvian sheep—they will bear a burthen of one hundred pounds, with which they will travel over mountainous regions, more rapidly than either the mule or ass.

The eyes of the Llama are black, very soft and expressive—his limbs are as clean as those of a deer, and when in active motion, he carries his ears erect, like those of a horse when alarmed. The whole body is covered with a soft woolly coat of hair, but which does not curl or drop off like that of the camel. The finest wool, and that which is the least mixed with hair, is on the back and rump of the animal.

The common color of the Llama is a light brown, but it sometimes has been found purple, and occasionally grey, but never partly colored—under the belly he is universally white, and it is there the shearer collects a separate lot of wool. The whole of the four species of Peruvian sheep are remarkable for cleanliness, and their fleeces are divested of that greasy quality and offensiveness peculiar to the sheep of other countries.

The softness and abundance of the Llama's coat makes a pack saddle under the load unnecessary; and as the Peruvian Indians prefer the fleeces of the other sheep, they seldom rob the Llama of his clothing, but there are certain parts of him which yield a wool peculiarly fine.

The Llama, as well as the three other species, ruminates and chews its cud, the same as a cow, but like the camel, seldom requires drink—he will pass weeks and months without being known to take a draught of water—the moisture contained in their green food appears to be sufficient, and even the one in London, although fed on dry hay, grains and carrots, for several months during the year, has been known to drink only once in four weeks from a bucket of water placed near him.

The meat of the kid Llama is excellent, but that of the old sheep is tough, and seldom used by the Indians.

The gait of the Llama is peculiarly majestic, and is so extremely sure footed, that when the panniers are perfectly poised, there is no need of pack saddle, bridle, crupper or girth; and he is under such perfect command of his driver, that even in droves of two or three hundred, they march in such order as never to interfere with each other, and in this respect are far superior as beasts of burthen, to either the Mule or Horse.

Although very docile, he is extremely sensible of ill usage—if overloaded, or overworked, he lays down, and is generally raised by coaxing and patting him. The usual age to which the Llama lives, is about fourteen years—he is fit for labour at the age of three. I have no doubt he would find a congenial climate in many of the mountainous regions of the United States; and as to food, there remains no question, from the experiments which have already been made, that our country furnishes every thing necessary for his sustenance, and perhaps by crossing the breed, the fleece would be improved, and divested of that portion of hair with which it is at present intermixed.

(TO BE CONTINUED.)

ARRACACHA,

A vegetable of South America, superior to the Irish Potato, which it resembles.

We are endeavouring to collect the best information we can, respecting a vegetable called Arracacha, said to be a native of South America, and to be more valuable than the Irish Potato, which it resembles. We propose to place the result of our enquiries into the hands of some of our public spirited merchants trading to that country, in the hope of introducing the vegetable into our own. A letter was addressed to Doctor Mitchell on the subject, expecting, from his universal knowledge, and his amicable relations, and scientific correspondence with all quarters of the world, to derive the desired particulars of information. The Doctor referred us to Mr. Robinson as a person most likely to satisfy our wish, and from a very interesting letter received from Mr. Robinson on some other subjects, we extract what relates to this. —We add what we find on the same topic in that valuable work, of Doctor Mease's, "The Archives of Useful Knowledge"—and we entreat the attention of our merchants to the subject. By some of their captains or supercargoes, these vegetables might be had, and they themselves, may acquire the oest of all renown, that which springs from doing solid good to their country. The object in view, would be the more readily attained, if some of the editors in the sea port towns would have the goodness to copy this.

Edw. Am. Farmer.

Extract from Mr. W. D. Robinson's Letter.

I regret that I cannot answer satisfactorily your inquiry respecting the Arracacha of South America, further than that I have several times eaten a root produced in Guatemala, which is not merely a substitute for the yam and potato, but in my opinion far superior to either—I do not remember the Indian or Spanish name for the root in question, but it was represented to me as an indigenous production of Guatemala, and has been transplanted to the province of Oaxaca in Mexico, where it thrives as well as in its native regions. It is about two to three pounds weight, but is said to have been produced as large as to weigh ten pounds. I have seen it of various colours, particularly purple and violet, but the white is most preferred by the Creoles—it is as mealy as the finest Irish potato, and contains I think more nutritive qualities—I have heard some extraordinary statements of the quantity of this root raised in a fanga of ground, but one fact is certain that it produces a return to the planter or farmer, far greater than any thing known in South America.

I conceive it an object of such importance as to justify your adopting every practicable means to get it introduced into the U. States, and I am in hopes that before long an intercourse will be opened for trade to Guatemala, which will enable you to effect the point.

But I think that if you were to address some intelligent individuals at Havana, you could obtain precise information on the subject, because there is a considerable intercourse between Guatemala and Havana.

There is an infinite variety of productions, vegetable and animal, in South America and Mexico, that have hitherto been scarcely noticed, and which opens an interesting field for the scrutiny of the naturalist and philosopher—how many indigenous productions of those vast regions may be transplanted to other countries, and there flourish in the same manner as the potato and tobacco plant has done?

New-York, May 19, 1821.

Extracted from the Archives of Useful Knowledge vol. 2—page 298.

TO MERCHANTS TRADING TO THE SPANISH MAIN.

The merchants who trade to Carracas and other parts of the Spanish Main, are requested to endeavour to introduce into this country, a very valuable South American plant, an account of which was given by Mr. Vargas, in London, and published in the annals of Botany, No. 2, p. 400. The popular name in South America is Arracacha, and it is one of the most useful plants in that country—Order, Umbellifera; in its habits it resembles an Apium, and therefore sometimes called Apio. Its stalk generally divides from the upper part of the root into several stems, thickly beset with large orbicular leaves gashed into several sinuses, and supported by large tubular petioles, exceeding a goose quill in thickness—the roots immediately divide into four or five branches; and each of these, if the soil be light and the weather favourable, will grow to the size, and have nearly the shape of a large cow's horn. This root yields a food which is prepared in the kitchens in the same manner as potatoes. It is extremely grateful to the palate, more close than mealy; it is so tender that it requires little cooking, and so easy of digestion, that it is the common practice of the country to give it to convalescents and persons with weak stomachs, being thought much less flatulent than potatoes. Of its fecula is made starch, and a variety of pastry work; reduced to a pulp this root also enters into the composition of certain fermented liquors, supposed to be very proper to restore the lost tone of the Stomach. In the city of Santa Fe, and indeed, in all parts of this kingdom, where they can obtain the Arracacha, they are of full as universal use as the potatoes are in England. Its cultivation requires a deep black mould, that will easily yield to the descent of the large vertical roots. It is propagated by cutting the root in pieces, each having an eye or shoot, and by planting these in separate holes. After three or four months, the roots are of sufficient size and quantity to be used for culinary purposes; but if suffered to remain six months in the ground, they will often acquire an immense size, without any detriment to their taste. The colour of the root is either white, yellow, or purple; but all are of the same quality. The most esteemed are those of L. paron, about ten leagues north of the capital (S^{te} F^e). Like the potato, it does not thrive in the hotter regions of the kingdom, for there the roots do not acquire any size, but throw up a greater number of stems, or at best they will be but small and of indifferent flavour. It thrives best in the elevated regions of the mountains, where the medium heat is between 58 and 60 degrees of Fahrenheit's scale; here it is that these roots grow most luxuriantly, and acquire the most delicious taste. Mr. Vargas believes it peculiar to the province of Carracas and kingdom of Santa Fe, as he has met with it in no other part of America where he has been, nor is it spoken of by any writer on America, except by Alcedo, who mentions it in a few words at the end of his Diccionario Geografico—Historico de las Indias occidentales o America. It is indeed surprising, that such a useful vegetable should not yet have found a writer to make us acquainted with its history, or a Sir Walter Raleigh, to convey it as a valuable present to other regions, as it might easily be conveyed by seeds or roots.

PASTEL, OR WOOD,

Furnishes early and late pasture, is necessary in dyeing blue, and may be profitably cultivated to make Indigo, in the U. States.

BRINLEY PLACE, ROXBURY, Jan. 23, 1821.

DEAR SIR—Please to accept my sincere thanks, for the number of your American Farmer,* containing re-

* No. 42, of the 2d. vol.

marks on the culture of Pastel or Wood, which you have been so kind as to transmit me.

As practical knowledge is indispensably necessary, to test the correctness, utility and importance of theory, I send you a number of the Massachusetts Agricultural Repository for January 1821, containing the account of an experiment, on the cultivation of Pastel, and the extraction of the colouring matter from its leaves, which I made, subsequent to the publication of a translation of Lasteyrie's valuable work.

Notwithstanding the facility, with which Pastel can be cultivated in this country, and manufactured into paste, cakes, or pelotes, for the use of the dyer, considerable quantities, thus prepared, are annually imported, chiefly from England.

As common indigo is cheaper in the U. States, than such as can be extracted from Pastel, it will be generally used, as the basis of blue colours, except, perhaps, during war, or when a sufficient supply from any cause, cannot be obtained;—but the importance of Wood to foment the "indigo vat," and to give a superior and permanent colour to cloths, and for which there is no substitute, is now, so universally known, that no dyer, who is ambitious of acquiring celebrity for the perfection of his colours, expects to acquire distinction, without the aid of that substance. With great respect your most obedient servant,

H. A. S. DEARBORN.

J. S. SKINNER, Esq.

EXTRACT from the 3d No. of the 4th vol. of the Massachusetts Agricultural Repository.

The public are indebted to General H. A. S. Dearborn, of Roxbury, not only for the translation of an admirable treatise of P. C. De Lasteyrie, on the culture, preparation, history, and analysis of Wood, but amidst his numerous public avocations, for his spirited and judicious experiments upon its culture, and the process of obtaining a pigment from it.

The Trustees of the Massachusetts Society for Promoting Agriculture, in submitting his letter to the public, tender him their respectful acknowledgments for his interesting communication. They assure the public that they have a specimen of the pigment obtained by General Dearborn, very nearly resembling, in colour and all its sensible properties, the most perfect indigo. General Dearborn, in the true spirit of a patriotic citizen, also authorizes them to assure the public, that he has two bushels of Wood seed ready to be given to any person who may be disposed to cultivate it.* The work translated by Gen. Dearborn may be had gratis by the Agricultural Societies throughout this state, by applying to J. Lowell, Corresponding Secretary of the Massachusetts Agricultural Society; General Dearborn having presented certain copies for this end.

Before we insert General Dearborn's letter, we would observe that a French gentleman of science, Monsieur De Caritat, has recently, in a letter to the New-York society for the encouragement of manufactures, thus noticed and confirmed the opinions of a General Dearborn. Speaking of a Mr. Treytorrens, a dyer of Switzerland, he says:

"Through the kindness and zeal of Doctor Mitchell and Mr. James Robertson, with whom I have made him (Mr. Treytorrens) acquainted, he had knowledge of a work just published in Boston, and sent by the translator, Mr. H. A. S. Dearborn, to the former gentleman. When he had ran it over and examined it, he came again to me, wishing I should state to you his observations and discoveries, either relative to the subject, or some other branches of his profession, tending to shew his devotedness to his adopted country, and particularly its manufactures.

"The following are nearly his words:—"Pastel or

* The Editor of the American Farmer, still has on hand, a part of the Wood seed, which was recently placed with him for distribution by John Le Mesurier, Esq. of Virginia.—He has sent parcels of it to many persons, and any one who may wish to cultivate the plant shall be promptly supplied with some of this seed on application being made to us in person or by letter: it is fresh and good.

Wood, on which a treatise has just been published in Boston, is well known and familiar to Mr. Tretyrens, not as having cultivated it himself, which however he often saw and observed in the soil, nor manufactured, though acquainted with the process; but as having employed its product for dyeing. Its quality, and its indispensable use with indigo to obtain a deep, rich, and superlative blue colour will be the sole of his remarks now. Without Pastel or Wood, or a substitute perfectly analogous, according to him, there is no possibility of dyeing a deep unchangeable blue, (let the materials be what they will), of a superior quality. As this plant is not indigenous to the U. States, and has been in Europe considered by the learned among many of a similar nature, as *deserving the preference*, the treatise concerning it, and especially the success of the experiments made here, for cultivating the same, must of course be regarded as *most precious and valuable acquisitions*. Mr. Tretyrens then goes on to speak of a substitute for Pastel, but which he does not pretend to say is better, and which he calls Milk-weed, or Silk-grass. What this plant is, or what part of it is used, does not appear. It will not, we are persuaded, supersede the valuable plant described in the following letter.

BRINLEY-PLACE, (near Boston) Oct. 28, 1816.

As a citizen of Massachusetts, I feel great solicitude in every thing which may contribute to render the products of her soil of importance to the nation, and render the labours of the Agriculturist profitable.

As the society of this Commonwealth for the encouragement of those objects, have recommended experiments and invited communications on all subjects interesting to the farmer, I herewith transmit a number of copies of a work, which I have translated from the French, on the culture of Wood or Pastel, and the use of its blue pigment in dyeing.

Desirous of testing the correctness of the experiments which are therein detailed, of the best methods of cultivating Pastel, and extracting the indigo from the matured leaves of the plant, I sowed a piece of ground early in May, in drills, three feet apart, and at the first weeding thinned out the plants so as to have them six inches apart.

On the 15th of August, I cut a part of the leaves, which covered one sixtieth part of an acre, and pursued the process contained in the *Information upon the Art of extracting Indigo from the leaves of Pastel*, published by order of his excellency Montalivet, Count of the empire and minister of the interior; contained in the treatise transmitted. The experiment succeeded to admiration, and I herewith send you a sample of the Indigo obtained.

The fermentation was perfect at the expiration of 48 hours. The liquor being drawn off from the vats one bucket of lime water, prepared agreeably to the directions contained in the treatise, was added to two of the liquor, and then agitated with a small wooden rake for fifteen minutes, when a most copious white froth arose to the surface, which soon assumed a bright blue colour. This froth was carefully skimmed off and put into earthen bowls to dry, and gave me a quantity of "*bleu*," as mentioned at page 138; a part of which I send you.

The green flocculi were deposited in two hours.—The superabundant yellow liquor being drawn off, an ounce of sulphuric acid, diluted with water, to every bucket of the liquor, was poured into a moreen precipitate, which instantly changed it to a most beautiful cerulean blue: cold water was then poured into this admixture and violently agitated for ten minutes.

Twelve hours after, the liquor was drawn off, and the blue deposition put into cloth filters to drain. In twenty-four hours, the indigo was perfectly drained, taken out, and put into a box with a linen bottom, which was placed in an airy situation, under cover. At the expiration of seventeen days, it had become a tenacious paste; was then taken out with a wooden knife, and pressed into small boxes to dry. In two weeks the Indigo was perfectly dry.

At the expiration of twenty days, the plants which had been cut, were grown sufficiently large to cut again; which would give of course, three cuttings a

year, in this northern climate; but if sown in September, here might be four, if not five cuttings a year. As the plants are not injured by the frosts of winter, they would, in this way, be fit to cut in June.

From this experiment, I am satisfied the following quantity of indigo could be made from an acre of ground. One cutting from one sixtieth of an acre gave, of indigo, half a pound. One cutting from one acre, therefore, would have given thirty pounds. The present price of indigo is two dollars per pound; therefore, one acre of land, cultivated with Pastel, would produce to the farmer, 200 and 40 dollars.

I wish you to distribute some of the books I have sent, among the different agricultural societies in this state, and the remainder in such manner as will best tend to diffuse a knowledge of the advantages which the agriculturists and dyers of this state may derive from the cultivation and use of Pastel.

If the present pacific state of the world be adverse to the extension of the cultivation and use of Pastel, as a dyeing material, it is nevertheless important that the advantages which the different sections of our country may reap, at some future period, from this plant, should be known, when less favourable circumstances shall combine, to deprive us of colouring ingredients, now so easily obtained, from every part of the globe.

During the war, indigo was four dollars a pound in New-England and New-York.

It is of the first consequence to a nation, that it can, at all times, be able to rely on the resources of its soil and industry, for not only the necessities, but the luxuries of life.

The resources of the United States are as yet, very imperfectly developed, but the rapid advances, which are now making in chemistry, mineralogy, botany, agriculture, and the mechanic and fine arts, warrant the most favourable anticipations of the future glory, prosperity, happiness and real independence of the republic.

Besides the advantages resulting from the cultivation of wood, as a pigment for dyeing, it is indispensably necessary for fermenting the *indigo vat*. For this purpose, the green leaves are used, or they are made into cakes, balls or *pelotes*, as described in the treatise.

It is a notorious fact, among well taught, scientific and experienced dyers, that a deep, permanent, and brilliant blue cannot be produced, unless the *indigo vat* is fermented with wood. It has long been used in France, Germany and Holland, in preparing the *indigo-vats* in the best manufactories of those countries, and is now used in England; for it is found impossible to imitate the justly celebrated *SAVAL BLEUS* of France without it. A more perfect fermentation is thereby produced, and the particles of indigo consequently more uniformly held in solution. The colouring pigment, prepared in this manner, attaches itself so firmly to the fabrics, that cloths thus dyed appear of a deep uniform and beautiful blue; the colour does not rob off and never fades by exposure to wet, heat or the air, but remains permanent and unchanged.

There is no art less perfectly understood in this country, than dyeing; and it has been owing exclusively to the exertions of the first chemists of Europe, that it has been reduced to a permanent system, and the whole process conducted on known established principles.

Formerly there was a mysteriousness in the process, which for a long time excluded all attempts at investigation. Those who practised in the art, made it a point to keep, as important secrets, whatever they knew, and, like the manufacturers of glass, suffered no inspection of their labours, lest they should be robbed of an imaginary treasure. There were no means within their power of detecting the causes of failure in the preparation of their vats, for they were ignorant of the chemical effects of the different ingredients used. They merely knew from practice, or tradition, that a certain combination of materials made a red, blue, yellow or green dye, and if from an injudicious admixture the anticipated result did not take place, they merely said they had "*bad luck*."

Long custom had created prejudices, which forbade instruction, and, like many individuals of every mechanic art, the dyers laid it down as an axiom, that nothing useful could be learned from books, or instruction communicated by individuals, who had not served an apprenticeship, and laboured in the same vocation.

The vast strides which have been made in knowledge during the last fifty years, have not been confined to the schools of the literati, or only known to the secluded philosopher.

Useful discoveries in the arts, instead of merely giving eclat to the laborious investigator and patent experimentalist, have been extensively disseminated.

The perfection of European manufactures is attributed to chemical investigation.

The superior manufactories of painters' colours, earthenware, and porcelain, soap, medicinal preparations, the working of metals, the art of dyeing and distilling, and the astonishing improvements in agriculture, are some of the important effects, which have resulted from the chemical pursuits of the learned individuals, societies and academies of the last half century.

Although the United States have progressed in civilization and the arts, in a manner unparalleled in the annals of nations, still much remains for inquiry; and it is the duty of every citizen to contribute, by every means within his power, whatever may tend to advance the best interests of all classes of society, and render our nation industrious, learned, independent and happy. With great respect,

Your obedient servant,

H. A. S. DEARBORN.

COTTON HATS.

MR. SKINNER—It has been truly and prettily said, that he, who causes two spears of grass to grow where only one before stood, is a benefactor of mankind. The pursuit, in which you, and many other gentlemen of our country, are engaged, gives you claims to the title of benefactors of mankind. The new spirit and zeal in agriculture, and in all departments of husbandry, which your editorial labours have created, tend a thousand times more to the good of the community, than the political bickerings of our news-papers. I hope the whole community will continue their attention to the noble subject of Agriculture; and that you will long find your pleasure and profit, in fostering a pursuit in which we are all so much concerned.

The same feelings and the same motives, which create the greatest enjoyments derived from agricultural pursuits, will naturally inspire regard for every improvement, every invention, and every institution, in any degree connected with the comfort, convenience, and prosperity of the farmer and planter. Hence every art, calculated to consume, at little cost to the husbandman, the products of his labour, and to create demand for the repetition of his crops and his harvests, concerns him as much as the market price of his wheat, and his corn, and his cotton in the great shipping towns; and the more so, as he may be assured, that the skill and the labour of the artist may also be rewarded, by every new metamorphosis which the staple products of his grounds shall undergo. The farmer produces his wheat, in doing which his servants or hirelings are supported—the miller, the mill-right, the lumber merchant, the engineer, the cooper, the merchant, the baker, and finally the consumer, all follow in his train—who can look along

this, with indifference—so of the cotton planter. He is not alone concerned in the destinies of the tender plant which he so carefully nurses, and cultivates. Its product at last interests and occupies the skill and labour of a thousand others. And every contrivance or discovery, which will consume the contents of two where that of one pod or bawl was before consumed, enhances the value of the commodity to the grower; so that, in the end, it will be found there is no natural hostility between agriculture and the arts employed in applying to various uses its various products. Indeed what would there be to inspire the pioushman, if the fruits of his labour were not to be converted by artists, into a thousand shapes, to administer to the taste and comfort of consumers? Were it not for the necessities of others, he would need no more than the bare supplies for himself; and this would prove the measure of his industry and emulation. His fine fields would become wildernesses; and all his taste & polish, & all his spirit, would be transformed into the desires, and sensuality of a savage. So, the arts stimulate agricultural industry; and you and your virtuous coadjutors, already, display a deep interest in them. Every new modification of the staples of the country concern you. Then let me ask your attention to a beautiful invention for the manufacture of hats from cotton. The hat I had the pleasure of shewing you the other day being in the window of the manufacturer, I was struck with its beauty; and walking into the shop inquired its price. My surprise was great indeed, on being answered, *two dollars and a half!* I did not perceive the reason, but my difficulties were all settled by the information of the shop-keeper. It is the cotton hat, said he—well, it looks quite as handsome as the beaver, will it wear as well? Quite as well, and as long as the beaver on your head said he, and for which I dare say you gave nine dollars. Here is the proof added he, taking up a hat from the counter; this hat has been worn eleven months, during which time, it has performed two voyages to the West-Indies. I examined the hat, and found it as good, in colour and texture, as any beaver I ever saw worn as long and under like circumstances. I bought a white hat, which I have now worn two weeks, I have no reason to doubt, that, in six months trial, it will prove to be a good hat.—many gentlemen admire it, and ask me, where I procured it.

I am not only interested in the very great difference in the cost of the cotton hat compared with a beaver, but in the prospect that the manufacture will consume a great quantity of cotton. Here then the planter has also an interest in the manufacture, for every hat will consume less or more of his commodity, and consequently increase the demand. The hat I now wear is made of the Sea-Island cotton, and I never saw that material transformed to greater advantage from a raw state to a fine fabric. This case may serve, among a thousand others I could put, to illustrate the intimate connection between agriculture and the arts; and how much it is for the interests of the votaries of both to draw together.

Mr. Editor, you will afford a more particular

account of the article I have cited for your notice, by inserting here the description of the invention by the patentee.

I am with great esteem,

Sir, your most obedient, &c.

E. HARLOW CUMMINS.

THE HISTORY OF COTTON HATS.

Ingenuous and inventive individuals amongst Hat Manufacturers, have long considered it an object meriting the most vigilant search to discover some method whereby cotton might be advantageously manufactured into hats. With a fibre as fine, and as strong as the fur of the Beaver, and susceptible of a more permanent colour, perfectly free from those coarse hairs inseparable from fur, it was evident that if some method could be devised whereby cotton could be wrought into Hats, it would prove an important acquisition to our country; inasmuch as it would be the means of supplying our citizens with Hats of equal fineness and durability with the Beaver, at a much lower price; and also, as it must afford a valuable article for exportation, wherefore the Agriculturist, the Merchant and the Manufacturer, were alike interested in the attainment of this object, consequently various plans were formerly suggested & experiments tried to discover some process whereby cotton could be wrought into hats like fur, but all in vain, and the project was then abandoned. But a young man from Ohio, subsequently formed the idea of making Hats of birch bark and covering them with cotton plush; he communicated his plans to me and some experiments were made, without much success. Other persons in different places made Hats of paper and covered them in the same way, but a shower of rain destroyed them at once. At length an ingenious shoe-maker near Boston, having become acquainted with the qualities of certain gums in rendering not only leather, but paper also impervious to water, devised a method of putting paper Hats together with cement, rendering them completely water proof throughout, after which, he covered them with cotton plush, and they justly obtained a considerable degree of celebrity in the vicinity where they were made. In this stage of the progress of the business, in the beginning of the year 1819, I commenced manufacturing Cotton Hats, being fully convinced that in the hands of a skilful hat manufacturer, the business might be so improved as to gratify every wish that had been felt on the subject. Finding by experience the method then practised deficient in many respects, which rendered the hats liable to various objections, I commenced and prosecuted a series of experiments which resulted in the discovery of a superior set of apparatus for putting the hats together, and also of a cement for rendering them impervious to water, and for more firmly cementing the Plush to the paper, which is much more elastic and durable than the kind before used, and greatly increases the strength of the hats. I now make the bodies of my improved elastic Water Proof Hats of a peculiar kind of paper manufactured from canvass expressly for the purpose, possessing great strength and durability when preserved from wet; the paper is oiled and coated several times with the above mentioned cement.—The best Sea-Island Cotton only will be used in future, which is spun and wove into a very strong cloth upon one side of which a thick strong nap is raised, it is then coloured with the most permanent black dye, after which the hats are covered with it; being previously prepared as before described, the cloth and paper are firmly united into one body by means of the aforesaid cement; thus each part strengthening and preserving the other, affords a light, handsome and durable hat, of a quality suitable for the first man in the nation, and at a price within the reach of all.

I have obtained a patent for my improvements, and now respectfully invite each citizen and stranger to buy a Cotton Hat and give it a fair trial. An extensive assortment for men and boys, black and drab colours, and some with green unders, also fancifully

trimmed children's Jockies may be seen, and are offered for sale at No. 200 Front street, corner of Fulton street New York, No. 41, South 3d Street Philadelphia, and 20 1-2 Market-street, near the Marsh Market Baltimore, by the single Hat, dozen and gross.—It is recommended that the men may be careful to avoid unnecessarily brushing them, to brush them frequently so as to keep the nap smooth and clean; occasionally moistening the nap with a little sweet oil by brushing it over the hat, will increase the lustre and preserve a fine jet black, by this means they will wear bright and handsome for a very long time, retaining their shape, their nap and their colour as long at least as beaver hats. To guard against imposition the lining in future will be stamped with the name of the subscriber, or that of Thomas Bullum & Co. Baltimore.

ARNOLD BUFFUM.

Baltimore, 15th May, 1821.

ASPARGUS.

How to Sow, Plant, and Cultivate it.

Str.—Choose a flat and rather low piece of ground, on the south side of your garden for your bed. If you do not mean to plant roots or seed in the spring, I would recommend you to manure it very highly, and raise a bed of cabbage or potatoes on it in the summer; manure it in the fall again, and leave it till the next spring. But if you design to plant in the spring, I would recommend you to turn in a heavy top dressing of manure, that has been well beaten with a flail, into small pieces when spread; after this is turned in, and before you rake, lay on a top dressing of soapers ashes. To a bed of ten feet wide, by 140 feet long, put about 15 bushels, but if the ground be very poor, 25 bushels would not be too much; this is to be chopped in with hoes, and then well raked; next make deep drills, flat at the bottom; if your bed be large, these may be run with a shovel plough, making a man lead the horse, having first traced them by a line, and the small end of a garden hoe; as soon as you have made one of them, clean it out with a spade, and plant it before you make another. The roots should be well spread out, and lay quite flat, and not pointing their extremities upwards; the crown of each root should be about two and a half or three inches below the surface when finished. The old rule was to put plants one foot each way. But I think that erroneous, and would advise you to place them two feet one way and one foot the other; that is to say, make the rows 2 feet apart, & put the plants 1 foot distant from each other in your row. By the old method the quantity of manure soon sufficed the earth & the plants dwindled. But by this new method, you can very conveniently give the bed any degree of richness, and greatly forward the growth of the young plants, not only by digging between the rows, to loosen the earth, but you may deposit manure in such places, and leave the dirt on the top of the bed; after the first deposit this is always exquisitely fine *Top Dressing*. Another error is in making the beds too narrow. If my ground were not very wet, I would greatly prefer to have all of my Asparagus in one great bed, and that relieved at the margin about one foot, and boarded up so as never to require any edge dressing. In the usual way of making beds four feet wide, the two rows near the edges, are always indifferent, and much trouble every spring in dressing them up. My present beds are about ten feet wide, so that a person going on each side can cut the whole without treading on them.

It is now rather late for roots, though you may plant them in October, as both spring and fall planting succeed—but fall planting does best in upland.

You may safely depart from the old rule of high ground, for I know that Asparagus will grow on a beach;—and it will be earlier when in low ground to my certain knowledge—so often do people miss their aim by attempting to lead nature by the hand, instead of trying to peep into her habits, and imitate

her work. If you follow the rule I have laid down, you may cover your beds in winter with leaves, and confine them with a layer of corn-stalks, and early in April or the last of March, if dry and in a safe situation, burn it down upon the bed which will give them a good top dressing. Any kind of manure will do to put between the rows; but I recommend that some animal manure be put in for a permanent job: after the plants are full grown, bones and leather cuttings, would be excellent, and last seven or fourteen years. But if you intend to sow the seed, then after the bed is prepared as before stated, plant a seed rubbed out of the pod one inch deep at every four inches, so that the surplus may be extracted when they grow. From my own experience, I do not think that a single day will be lost by using seed, for I have had roots from seed in seven months, that would weigh nearly a quarter of a pound each; seed may be sown any time this month, and the beds must be kept very clean from grass and weeds.

SUMMARY.

The old method.—High ground, narrow beds, close planting, great richness, and substratum at the outset. The error of this in every particular I have experienced.

The new method.—Low ground, wide beds, wide planting, so as to increase the proportion of earth, raise its quality by degrees, and finally to use a variety of manures, and depositing them between the rows, which takes off greatly from the first labour.

Baltimore County, May 1.

WHITLOW, OR PARONYCHIA OF THE MEDICAL BOOKS.—HOW TO TREAT IT.

This disease is often a severe affliction to hard working men, such as farmers. It originates from bruises or punctures that inflame the muscles, tendons or membranes beneath the skin—these swelling, whilst the hard tough skin of the fingers remains unyielding, causes the great pain, and extension of it up the arm—the thick skin of the fingers also prevents any exudation or escape of purulent matter, and thus the bone becomes diseased, and a joint is lost. Persons with soft fingers are seldom attacked. An artificial and similar disease may be formed at any time by winding a string round an inflamed finger, or by sewing it up in a piece of unyielding leather. In this case the most stupid person would think only of cutting the string or ripping the leather, and yet it is rarely that you see a physician go to work in this rational manner. He must first salve it, and plaster it with some ointment, which is just as likely to make a cure as the treading on it, that is practised by ignorant people before it becomes intolerable—by such practices and such neglect, the disease often runs on till nature makes a gap, and the physician modestly charges for what another has done.—The proper remedy is simple and easy; lay open the thick skin, the whole length of the swelling, and dress the finger for one or two days with a soft poultice of bread and milk, and then lay lint on the wound—a little red precipitate ointment may be necessary where the proud flesh does not suppurate freely. The writer of this has relieved a great many persons without the loss of a joint, and has followed no other plan for twenty years.

MEDICUS.

P. S.—The palm of the hand is sometimes the seat of the disease, and a very affecting

case of this kind lately occurred in Baltimore county, of a female who had brought it on by excessive work, to supply the deficiency of a lazy husband.

HAND MILLS, FOR FARM PURPOSES. CITY OF WASHINGTON, April } 16th, 1821. }

DEAR SIR,

I have observed in No. 2 of the American Farmer, volume 3d, a letter from Athanasius Fenwick, Esq. chairman of the St. Mary's County Agricultural Society, relative to portable mills, such as were used in the French armies in Spain, &c. Some time ago, several numbers of "LE MONITEUR UNIVERSEL" were sent to me; and from the one of 12th Jan. 1819, I extracted the enclosed advertisement—altho' the mill therein described is not portable, it appears, however, to be of the kind required by the St. Mary's Society, and I should suppose it might be so constructed as to grind Indian corn. Make such use of the advertisement as you may think proper.

Your most obedient,

JOHN S. SKINNER, Esq.

C. F.

From "Le Moniteur Universel."

PARIS, January 12th, 1819.

"The drought experienced for several months past, is prolonged by the present state of the temperature, which induces us to call the attention of proprietors and cultivators, to the wheat-mill, invented by Mr. Quentin Durand, director of the Repository of Inventions and Models belonging to the Duke de Berry, established in Bussey-street, No. 19, Paris." The Editors further remark, that the following details are extracted from a prospectus, now lying before them; and in which it is declared by the inventors, "that more than 800 mills have already been sold at their forges—these, upon trial, had to contend with slight difficulties, which were surmounted easily, and led to some improvements, or alterations that were followed by the happiest effects; so that these wheat-mills now represent the combined workmanship of all the known wind and water mills."

Judging, therefore, by the demands and constant orders received from every place in which the cultivators have had an opportunity of seeing them in complete operation, the inventors hope to sell many millions. Several persons have confounded the name of Durand, with that of Messrs. Durand and Son, locksmiths, mechanicians and inventors of hand-mills with small mill stones, published in 1793, which were the best inventions of the kind known at that time; but since then, twenty-five years have elapsed, in which the arts have made great progress. The smallest mill of Messrs. Durand and Son, which cost 520 francs,* could not grind more than four pounds of flour, in the bran, per hour, or sixty pounds of flour, per day. But our mill, on the contrary, which costs only 60 francs in Paris, or 70 francs† delivered free of expense in any other

part of France, will yield from twenty to twenty-five pounds of superfine flour, per hour, and requires only one man, or boy to work it. The mill of 1793 was cumbersome, but these occupy only a small space, and require no repair except the graining, which in an hour's time may be revived by any one."

THE FARMER.

BALTIMORE, FRIDAY, JUNE 1, 1821.

ERRATA.

Our readers will please make the following corrections in the article on a Dairy, &c. page 71, No. 9.

For *Cluffed*, read *Chaffed* hay, in the heading.

For *Roasted*, read *Washed* sand, about midway in the second column.

For *have* two walls, read *have* two walls, just below, the above.

For *such as bushel measures*, &c. read, *with ears* such as bushel measures have, near the foot of the second column.

PRICES CURRENT.

Flour, from the wagons, \$4—Whiskey, from ditto, 24 cents per gallon, exclusive of barrel, 27 cts. do. including barrel—Hay, per ton \$18 a 20—Straw, \$7 a 8 per ton—Wheat, White 80 to 83 cts. per bushel—Red, do 76 a 79 cts.—Corn, 30 to 31 cents per do.—Oats, 25 a 28—Rye, 40—Barley, 25 to 30 p. bu.—Cod Fish, per quintal, wholesale \$3, retail ditto \$4—New-England Beans per bushel, \$1 12½—ditto Peas, 75 cents—Plaster in stone \$6 per ton—do. ground, \$1 35 per barrel, 33 cents per bushel, \$8 per ton—New Orleans Sugar \$9 to 12 50—Muscovado do. \$7 50 to 9 25—American White Lead, \$12 50—Ground, do. \$13 a 14—Lined Oil, 75 cts.—Feathers, 40 to 45 cts.—Potatoes, per bushel, 62½ to 75 cts.—Shad, new, \$6—Herrings, \$2 to 2 25, declining—Pine Salt, 50 per bushel—Ground Alum do. 46 to 48—St. Ubes, 50—Cadiz, 50 to 55—Turks' Island, 75—Cadiz ditto, 60—Live Cattle, 5 to \$5 50—Beef, 3 to 10 cts.—Hams, 10 to 12 cts.—Middling, 10 cts.—Butter, 50 to 55 cts.—Eggs, 12½ cts.—Cheese, 8 to 10 cts. pr lb.—Tar, \$1 50—Turpentine, \$1 87½ to \$2, Pitch, \$3½, Rosin, common 13, bright do. \$3, per barrel.—Varnish, 25 cts.—Spirits turpentine, 33 cts. per gal.—Cotton, good Upland, 13 a 15 cts. very dull—Rice, 3 a 3½ cts.—ship and flooring Plank \$25 to 27—Shingles, best 6½, to \$7, com. \$3 to 4 5 p. M.
No change in the price of Maryland Tobacco since last week. A few hhd. of Virginia Tobacco sold at 64.

STRAW CUTTER, &c.

The subscriber has just completed and has for sale, a quantity of

Hyde's Straw Cutting Machines.

They are made of the best materials, and combine simplicity, economy, durability, and labour saving; they can be applied to horse, steam or water power; also, to cut corn stalks, hay, clover, &c. from half an inch to two inches; the principal knife is permanent; the axle or cylinder contains three pressures, which act as a shears; it feeds itself by rollers, and works by spur wheels; every revolution of the balance wheel cuts three times. He challenges any state or individual in the union, to come forward and prove their equal.

He has also for sale, a quantity of BOX CHURNS of sizes, which will make butter in a short time. A liberal discount will be allowed to retailers, in town or country. Any commands left at CASEY'S SEED STORE, No. 2, Hanover-street, next door to Barnum's Hotel, at the work shop, opposite, or at Sutcliffe's Livestables near the Marsh market, will be attended to.

JOHN GILL.

* About \$100. † About 11, or \$13.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua si bona norint
Agricolae." VIRG.

VOL. III.

BALTIMORE, FRIDAY, JUNE 8, 1821.

NUM. 11.

AGRICULTURE.

REPORT

With sundry Resolutions relative to Appropriations of Public Land for the purposes of Education, to the Senate of Maryland, January 30th, 1821.—PUBLISHED BY AUTHORITY.

The Committee to whom was referred so much of the Governor's message, as relates to education and public instruction, beg leave to report :

That they concur with his excellency in believing education, and a general diffusion of knowledge, in a government constituted like ours, to be of great importance, and that "in proportion as the structure of a government gives weight to public opinion, it is essential that public opinion should be enlightened." Your committee consider our government as emphatically a government of opinion. A general diffusion of knowledge, which is essential to its right administration, cannot be effected, unless the people are educated. No high degree of civilization, of moral power and dignity, or of intellectual excellence ; no superiority in science, in literature, or in liberal and useful arts, which constitutes the noblest national supremacy, can be attained without the aid of seminaries of learning. The establishment of literary institutions, then, of all grades, from the common school, up to the university, becomes the first duty of the legislature of a free people.

Your committee are well aware of the difficulty, in the present embarrassed state of our pecuniary concerns, of providing the means of making education general. They are fully sensible, that, at this time, large appropriations out of the public treasury, for this purpose, all-important as it is cannot be expected. They deem it therefore their duty to recall to your notice a report and certain resolutions, presented to the senate at the last session by a committee of a like nature with the present, which has been referred to your committee, as a part of the unfinished business. The object of those resolutions was to call the attention of congress, and the legislatures of the several states, to the public lands, as a fund, from which appropriations for the purposes of education may with justice be claimed, not only by Maryland, but all the original states, and three of the new ones.

One thirty-sixth part of all the states and territories, (except Kentucky) whose waters fall into the Mississippi and the Gulf of Mexico, has been appropriated by Congress, wherever the Indian title has been extinguished, and provisions made for further appropriations, according to the same ratio, wherever the Indian title may hereafter be extinguished, for the support of common schools, and other large appropriations have been made for the support of seminaries of a higher grade. Your committee are of opinion, that the states, for whose benefit no such appropriations have been made, are entitled to ask them of Congress, not as a matter of favour, but of justice. That this may more fully appear, especially as the right of those states to an equal participation, with the states, formed out of the public lands, in all the benefits derived from them, has been doubted, your committee have deemed it proper to take a cursory view of the manner in which they have been acquired.

Before the war of the revolution, and indeed for some years after it, several of the states possessed, within their nominal limits, extensive tracts of waste and unsettled lands. These states were all, at that epoch, *regal*, and not *proprietary* provinces, and the crown, either directly or through the medium of officers, whose authority had been prescribed or ascribed

to by the crown, was in the habit of granting those lands. The right of disposing of them was claimed and exercised by the crown in some form or other. They might therefore, with strict propriety, be called the property of the crown.

A question arose soon after the declaration of independence, whether those lands should belong to the U. States, or to the individual states, within whose nominal limits they were situated.

However that question might be decided, no doubt could be entertained, that the property and jurisdiction of the soil were acquired by the common sword, purse and blood, of all the states, united in a common effort. Justice, therefore demanded that, considered in the light of property, the vacant lands should be sold to defray the expenses, incurred in the contest, by which they were obtained ; and the future harmony of the states required, that the extent and ultimate population of the several states, should not be so disproportionate, as they would be if their nominal limits should be retained.

This state as early as the 30th October, 1775, expressed its decided opinion, in relation to the vacant lands, by an unanimous resolution of the convention, which framed our constitution and form of government, in the following words, viz. "Resolved unanimously, that it is the opinion of this convention that the very extensive claim of the state of Virginia to the back lands hath no foundation in justice, and that if the same, or any like claim is admitted, the freedom of the smaller states and the liberties of America may be thereby greatly endangered—this convention being firmly persuaded, that, if the dominion over those lands should be established by the blood and treasure of the United States, such lands ought to be considered as a common stock, to be parcelled out at proper times into convenient, free, and independent governments."

In the years 1777 and 1778, the General Assembly, by resolves, and instructions to their delegates in Congress, expressed their sentiments in support of their claim to a participation in these lands, in still stronger language, and declined according to the confederation, on account of the refusal of the states claiming them *exclusively* to cede them to the United States. They continued to decline, on the same grounds, until 1781, when to prevent the injurious impression, that dissention existed among the states occasioned by the refusal of Maryland to join the confederation, they authorised their delegates in Congress to subscribe the articles protesting, however, at the same time, against the inference, (which might otherwise have been drawn) that Maryland had relinquished its claim to a participation in the western lands.

Most of the other states contended on similar grounds with those taken by Maryland, for a participation in those lands.

By the treaty of peace in 1783, Great Britain relinquished "to the UNITED STATES all claim to the government, property, and territorial rights of the same, and every part thereof."

The justice and sound policy of ceding the unsettled lands, urged with great earnestness and force by those states, which had united in conquering them from G. Britain, strengthened by the surrender on the part of G. Britain, of her rights of property and jurisdiction to the U. S. *collectively*, and aided moreover by the elevated and patriotic spirit of disinterestedness and conciliation, which then animated the whole confederation, at length made the requisite impression upon the states, which had *exclusively* claimed those lands ; and each of them, with the exception of Georgia, made cessions of their respective claims within a few years after the peace. Those states were

Massachusetts, Connecticut, New-York, Virginia, North Carolina, and South Carolina, the charters of which, with the exception of New-York, extended westwardly to the South Sea or Pacific Ocean. This circumstance gave to Massachusetts and Connecticut a joint claim with Virginia, to such parts of what was then called the North Western Territory, as came within the breadth of their respective charters. The rest of that territory lay within the limits of the charter of Virginia. New-York, indeed, had an indefinite claim to a part of it. Cessions, however, from all these states, at length completed the title of the U. States, and placed it beyond all controversy.

The state of North Carolina ceded its claim to the territory which now constitutes the state of Tennessee.

Georgia, (whose charter also extended westwardly to the Pacific Ocean,) at length, in 1802, ceded the territory, which now constitutes the states of Mississippi and Alabama, except a small part on the south side of them, which was acquired under the treaty ceding Louisiana. The conditions of that cession were, that the U. States should pay one million two hundred thousand dollars to Georgia, and extinguish the Indian title within the limits, which she reserved.

The U. States have, in this manner, acquired an indisputable title to all the public lands east of the Mississippi.

All the territory west of the Mississippi, together with the southern extremity of the states of Mississippi and Alabama, was purchased of France for fifteen millions dollars. This sum, as well as the sums required for the purchase of the Indian title to the public lands, was paid out of the treasury of the United States.

So far therefore as acquisition of public lands has been made by purchase, it has been at the common expense ;—so far as it has been made by war, it has been made by the common force ; so far as it has been made by cessions from individual states, it has been upon the ground, expressly stipulated in most of the acts or deeds of cession, that the lands should be "considered," to use the words of the act passed for that purpose by the state which made the largest cession, "as a common fund, for the use and benefit of such of the states as have become, or shall become, members of the confederation or federal alliance of said states, according to their usual respective proportions in the general charge and expenditure, and shall faithfully and bona fide be disposed of for that purpose, and for no other use or purpose whatsoever."

In whatever point of view therefore the public lands are considered, whether as acquired by purchase, conquest or cession, they are emphatically the common property of the Union. They ought to ensure, therefore, to the common use and benefit of all the states, in just proportions, and cannot be appropriated to the use and benefit of any particular state or states, to the exclusion of the others, without an infringement of the principles, upon which cessions from states were expressly made, and a violation of the spirit of our national compact, as well as the principles of justice and sound policy.

So far as these lands have been sold, and the proceeds been received into the national treasury, all the states have derived a justly proportionate benefit from them, so far as they have been appropriated for purposes of defence, there is no ground for complaint, for the defence of every part of the country is a common concern.—So far, in a word, as the proceeds have been applied to NATIONAL, and not to STATE purposes, although the expenditure may have been local,

the course of the general government has been consonant to the principles and spirit of the Federal Constitution. But so far as appropriations have been made, in favour of any state or states, to the exclusion of the rest, where the appropriations would have been beneficial, and might have been extended to all alike, your committee conceive there has been a departure from that line of policy, which impartial justice, so essential to the peace, harmony and stability of the union, imperiously prescribes.

Your committee then proceed to inquire, whether the acts of Congress, in relation to appropriations of public lands, have been conformable to the dictates of impartial justice.

By the laws relating to the survey and sale of the public lands, one thirty-sixth part of them has been reserved and appropriated in perpetuity for the support of common schools. The public lands are laid off into townships, six miles square, by lines running with the cardinal points; these townships are then divided into thirty-six sections, each a mile square, and containing 640 acres, which are designated by numbers. Section No. 16, which is always a central section, has invariably been appropriated, (and provision has been made by law for the like appropriations in future surveys,) for the support of common schools in each township.

In Tennessee, in addition to the appropriation of a section in each township for common schools, 200,000 acres have been assigned for the endowment of colleges and academies. Large appropriations have also been made in Ohio, Indiana, Illinois, Mississippi, Alabama, Louisiana, Missouri, Michigan, and the North Western Territory, for the erection and maintenance of seminaries of learning of a higher grade than common schools. Your committee have not had an opportunity of ascertaining the exact amount of those appropriations, but from such examination as they have been able to make, it is believed, that they bear a smaller proportion to those for common schools, than in Tennessee. Tennessee, in Seybert's Statistical Annals, is stated to contain 40,000 square miles, which are equal to 25,600,000 acres. One 36th part of this number of acres, which is the amount of appropriation for common schools, is 711,111. The appropriation for colleges and academies in that state, is, as above stated, 200,000 acres, being something less than two-sevenths of the common school appropriation. It is believed, that the appropriations in the other states and territories for seminaries of a higher grade, do not amount to more than two tenths or one fifth of the appropriations for common schools. Your committee think they will not be far from the truth in estimating them at that proportion.

The states and territories east of the Mississippi, which have had appropriations made in their favour for the support of literary institutions; that is to say, Ohio, Indiana, Illinois, Mississippi, Alabama, Michigan and the North Western Territory, are estimated, in Seybert's Statistical Annals, to contain of unsold lands,

200,000,000 acres
11,097,125
23,600,000

To which add Tennessee,

And the aggregate number of acres in those states and territories will be 237,297,125

One 36th part of that aggregate number, being the amount of appropriation for common schools, is 6,591,585 acres.

Add one fifth part of the common school appropriation as the appropriation for Colleges and Academies, 1,318,317 acres,

And the aggregate number of acres appropriated for the purposes of education in Ohio, Indiana, Illinois, Tennessee, Mississippi, Alabama, Michigan, and the N. Western Territory, will be 7,909,903

At two dollars per acre, which is less, according to Seybert's Sta-

tistical Annals, than the average price of all the public lands, which have heretofore been sold, the amount in money will be \$15,819,806.

Seybert estimates the lands purchased of France by the United States in 1803, at 200,000,000 acres.

By the laws relating to the survey and sales of lands in Louisiana, Missouri and Arkansas, appropriations of land for the purposes of education have been made after the same ratio, as in the new states and territories on the east of the Mississippi, and it is presumed the same policy will be adhered to in relation to the whole of the public lands on the west of that river. On that supposition the appropriations for common schools, that is one 36th part of 200,000,000 acres, will be 5,555,555 acres.

Add for Colleges and Academies one 5th part of the appropriation for common schools 1,111,111 acres.

And the aggregate number of acres will be 6,666,666.

At two dollars per acre, the amt. in money will be 13,333,333.

To the aggregate number of acres appropriated for the support of literary institutions on the east side of the Mississippi, 7,999,903

Add the aggregate number of acres, which if the system heretofore followed, should be, (as it ought to be) adhered to, will ultimately be appropriated to literary purposes on the west of the Mississippi 6,666,666

And the total of literary appropriation in the new states and territories will be 14,676,569 acres

At two dollars per acre, the amt. in money will be 29,153,159

Such is the vast amount of property, destined for the support and encouragement of learning in the states and territories, carved out of the public lands. These large appropriations of land, the common property of the union, will ensure to the exclusive benefit of those states and territories. They are appropriations for state, and not for national purposes—they are of such a nature, that they might have been extended to all the states; they therefore ought to have been thus extended. All the other states paid their full share for the purchase of the region west of the Mississippi, and for the extinguishment of the Indian title, on both sides of that river. Massachusetts, Connecticut, Virginia, North Carolina, South Carolina and Georgia, besides paying their proportion of those expenses, ceded all their vacant territory on the east side of the Mississippi. All these states, therefore, might with great propriety complain of partiality and injustice, if their applications to Congress for similar appropriations for like purposes should be refused. But of this refusal they need have no apprehension, if they are true to their own interests, and are united in asserting them—for, if contrary to all reasonable expectation, the states, which have already received the benefit of literary appropriations, should be opposed to the extension of them to their sister states, the latter are more than two-thirds in number of all the United States, and have a still larger proportion of representatives in Congress. These states are Vermont, New Hampshire, Maine, Massachusetts, Rhode Island, Connecticut, New-York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia and Kentucky, and together have one hundred and sixty-nine representatives in Congress. The fa-

voured states on the contrary have only seventeen representatives. The excluded states have therefore an overwhelming majority in Congress, and have it completely in their power to make appropriations for the benefit of their literary institutions upon the improbable supposition, that the representatives of the favoured states would oppose them in Congress, a supposition too discreditable to their character for justice to be admitted.

The magnitude of the appropriations, that would be required to place the states, which have not yet enjoyed any for the purposes of education, upon an equal footing with those, in whose favour they have already been made, can afford no just ground of objection. For superior as the population of those states is, yet if the ratio of appropriation be observed with regard to them, which has been adopted in relation to the others, i. e. one 36th part of the number of acres in the territory of each for common schools, and one 5th part of that one 36th for Colleges and Academies, the number of acres required will be much less than has already been given to the favoured states and territories—it will indeed amount to but a very small portion of the public lands—for according to Seybert's Statistical Annals, those lands in 1815 amounted to 400,000,000 acres. The amount required for all the excluded states would be less than two and a half per centum of that quantity—to show which more clearly, your committee beg leave to submit the following statement, founded upon calculations made upon the extent of territory in each of those states, as laid down in Seybert's Statistical Annals.

New Hampshire contains 6,074,240 acres.

One 36th part of that extent, being the number of acres of public land, to which that state is entitled for the support of common schools is 168,728

One fifth part of that 36th to which New-Hampshire is entitled for the support of Colleges and Academies, is 33,745

Total for New-Hampshire 202,473 acres.

Vermont contains 6,511,680 acres.

One 36th part for common schools, is 181,991

One 5th of one 36th for Colleges and Academies, 36,398

Total for Vermont 218,389 acres.

Massachusetts including Maine, contains 23,990,000 acres.

One 36th part for common schools, 805,277

One 5th of one 36th for Colleges and Academies, 161,055

Total for Massachusetts and Maine 966,332 acres.

Rhode Island contains 1,011,200 acres.

One 36th part for common schools, 28,088

One 5th of one 36th for colleges, 5,617

Total for Rhode Island, 33,705 acres.

Connecticut contains 2,991,360 acres.

One 36th part for common schools, 83,093

One 5th of one 36th for Colleges and Academies, 16,618

Total for Connecticut 99,711 acres.

New-York contains 28,800,000 acres.

One 36th part for common schools, 800,000

One 5th of one 36th for Colleges and Academies, 160,000

Total for New-York 960,000 acres

New Jersey contains 5,334,900 acres.	
One 36th part for common schools,	144,577
One 5th part of one 36th for Colleges and Academies,	28,917
Total for New Jersey	173,494 acres.
Pennsylvania contains 23,872,000 acres.	
One 36th part for common schools,	829,777
One 5th of one 36th for Colleges and Academies,	165,955
Total for Pennsylvania	995,732 acres.
Delaware contains 1,353,800 acres.	
One 36th part for common schools,	37,688
One 5th of one 36th for Colleges and Academies,	7,537
Total for Delaware	45,225 acres.
Maryland contains 8,960,000 acres.	
One 36th part for common schools,	248,888
One 5th of one 36th for Colleges and Academies,	49,777
Total for Maryland	298,665 acres.
Virginia contains 44,800,000 acres.	
One 36th part for common schools,	1,244,444
One 5th of one 36th for Colleges and Academies,	248,888
Total for Virginia	1,493,332 acres.
North Carolina contains 29,720,000 acres.	
One 36th part for common schools,	825,555
One 5th of one 36th for Colleges and Academies,	165,111
Total for North Carolina	990,666 acres.
South Carolina contains 15,411,200 acres.	
One 36th part for common schools,	428,888
One 5th of one 36th for Colleges and Academies,	85,617
Total for South Carolina	513,705 acres.
Georgia contains 29,630,000 acres.	
One 36th part for common schools,	1,102,222
One 5th of one 36th for Colleges and Academies,	220,444
Total for Georgia	1,322,666 acres.
Kentucky contains 32,000,000 acres.	
One 36th part for common schools,	888,888
One 5th of one 36th for Colleges and Academies,	177,777
Total for Kentucky	1,066,665 acres.
Total amount of literary appropriation necessary to do justice in the states which have not yet had any,	9,370,760 acres.

The senate will perceive from the foregoing calculations, that if the ratio of appropriation for the purposes of education, which has hitherto been observed, be adopted with respect to the sixteen states, which as yet have received no appropriations of that nature, a much smaller number of acres will be required, than has already been assigned to the west-

ern region of our country; it would be an inconsiderable portion of the aggregate of public lands—a much less quantity, indeed, than now remains unsold in any of the states, which have been formed out of them, with the exception perhaps of Ohio and Tennessee. The magnitude of the appropriations then, which equal justice now requires, cannot be considered as a reasonable objection to them, and as the literary appropriations, that have heretofore been made, have been granted for *schools* and not for *schools* and *colleges*, purposes, according to the true principle set forth in the beginning of this report, similar appropriations ought to be extended to all the states.

The circumstances, that the lands, which have heretofore been appropriated for the purposes of education, are a part of the territory of the states, for whose benefit they have been assigned, can furnish no reasonable ground for the preference, which has been given them. The public lands are not the common property of all the States, because they are situated within the jurisdictional limits of the states and territories, which have been formed out of them. Such states have no power to tax them—they cannot interfere with the primary disposal of them, or with the regulations of Congress for securing the title to purchasers—it is in fact Congress alone, that can enact laws to effect them. The interest, which a citizen of an Atlantic state has in them, as a part of the property of the union, is the same as the interest of a citizen residing in a state formed out of them. But hitherto appropriations of them for state purposes have only been made in favour of such states; and the citizen on the eastern side of the Alleghany may well complain, that property, in which he has a common interest with his fellow-citizen on the western side, should be appropriated *exclusively* to the use of the latter. That this is the fact in regard to that part of the public lands, which have been assigned for the support of literary institutions and the promotion of education, cannot be denied.

Your committee do not censure the enlightened policy, which governed Congress in making liberal appropriations of land for the encouragement of learning in the west, nor do they wish to withdraw one acre of them from the purposes, to which they have been devoted; but they think they are fully justified in saying, that impartial justice required, that similar appropriations should have been extended to all the states alike. Suppose Congress should appropriate 200,000 acres of the public lands for the support of Colleges and Academies in N. York; and Virginia, who gave up and ceded a great portion of those lands to the United States, on the express condition, that “they should be considered as a common fund for the use and benefit of all of them, according to their usual respective proportions in the general charge and expenditure,” should apply for a similar grant, and her application should be refused—would she not have a right to complain of the partiality of such a measure, and to charge the federal government with a breach of good faith, and an infringement of the conditions, on which the cession was made? It cannot be denied, that she would. Congress have already made a grant of 200,000 acres of land for the support of Colleges and Academies, not indeed in New-York, but in Tennessee. Would not Virginia, if she now made an application for a like grant, and were refused, have the same reason to complain, as if New-York, instead of Tennessee, had been the favoured state?

Your committee beg leave to illustrate, by another example, the equity of the principle, which it is the object of this report to establish. Foreign commerce and the public lands are alike legitimate sources, from which the U. States may and do derive revenue. Foreign commerce has fixed its seat in the Atlantic states. Suppose Congress should pass a law appropriating one thirty-sixth part of the revenue, collected from foreign commerce in the ports of Baltimore, New-York, Boston, Norfolk, Charleston and Savannah, to the support of common schools throughout the states, in which they are situated: the other states, very person will admit, would have a right to complain of the partiality and injustice of such an act—and yet, in what respect would an act appropri-

ating one thirty-sixth part of the revenue, derived from foreign commerce to the use of schools in the six states in which it should be produced, be more partial or unjust than an act appropriating one thirty-sixth part of the public land, in Ohio, Indiana, Illinois, Tennessee, Mississippi, and Alabama, the six states, in which the public lands on this side of the Mississippi are chiefly situated, to their exclusive benefit in the maintenance of their schools?

Your committee are aware, that it has been said, that the appropriation of a part of the public lands to the purposes of education, for the benefit of the states formed out of them, has had the effect of raising the value of the residue, by inducing emigrants to settle upon them. Although in the preambles of such of the acts on this subject, as have preambles, the promotion of religion, morality and knowledge, as necessary to good government and the happiness of mankind, have been assigned as the reason for passing them, and no mention has been made of the consequent increase in the value of the lands, that would remain, as a motive for the appropriation, yet the knowledge, that provision had been made for the education of children in the west, though other motives usually influence emigrants, might have had its weight in inducing some to leave the native homes. If such has been the effect, the value of the residue of the lands has no doubt been increased by it. This increase of the value however has not been an *exclusive* benefit to the Atlantic states; but a benefit *common* to all the states, eastern and western, while the latter still enjoy *exclusively* the advantage, derived from the appropriations of land for literary purposes. The incidental advantage of the increase in value of the public lands, in consequence of emigration, if it is to be considered in the light of a compensation to the old states, must be shown to be an advantage *exclusively* enjoyed by them. That this however is not the case is perfectly obvious—because the proceeds of the lands, thus raised in value by emigration, when sold, go into the United States treasury, and are applied, like other revenues, to the *general* benefit—in other words, to *NATIONAL* and not to *STATE* purposes.

It is moreover most clear, that this increase of the value of lands in consequence of emigration, pronounces a peculiar benefit to the inhabitants of the new states, in which the inhabitants of the other states, unless owners of land in the new, have no participation. This benefit consists in the increase of the value of their own private property.

On the other hand, it is undoubtedly true, that emigration is injurious to the Atlantic states, and to them alone. While it has had the effect of raising the price of lands in the west, it has in an equal ratio at least & probably in a much greater, prevented the increase of the value of lands in the states, which the emigrants have left. It is an indisputable principle in political economy, that the price of every object of purchase, whether land or personal property, depends upon the relation, which supply bears to demand. The demand for land would have been the same, or very nearly so, for the same number of people, as are contained within the present limits of the United States, if they had been confined within the limits of the Atlantic states. But the supply in that case would have been most materially different. It must have been so small in proportion to the demand, as to occasion a great rise in the value of land in the Atlantic states: for it cannot be doubted, that it is the inexhaustible supply of cheap and good land in the west, which has kept down the price of land on the eastern side of the Alleghany. If the Atlantic states had been governed by an exclusive, local and selfish policy, every impediment would have been thrown in the way of emigration, which has constantly and uniformly operated to prevent the growth of their numbers, wealth and power; for which disadvantage the appreciation of their interest in the public lands, consequent upon emigration, can afford no adequate compensation. It appearing then perfectly clear to your committee, that emigration is *exclusively* advantageous to the new states, whose population, wealth and power, are thereby increased at the expense of those states, which the emigrants abandon,

the inducement to emigration furnished by the appropriation of public lands for the purposes of education in the west, instead of affording a reason for confining such appropriations to that quarter of the Union, offers the most weighty considerations of both justice and policy, in favour of extending them to the states, which have not yet obtained them.

Your committee beg leave to present one further reflection to the consideration of the Senate, drawn from the effect produced by encouraging learning in the western states alone, upon the relative moral power of the Atlantic and Mississippi states. They are far from wishing to make any objection to the augmentation of the intelligence and mental improvement of the people of the west. On the contrary they sincerely desire the advancement of their brethren in that quarter of the Union, in every thing, that can strengthen, dignify and embellish political communities. But while they entertain these sentiments, they cannot shut their eyes to the political preponderance, which must ultimately be the inevitable result of the superior advantages of education there, and they must therefore ardently desire, that the same advantages be extended to the people of the Atlantic states.

Your committee are persuaded, that from the views which they have thus presented, on the subject of appropriations of public lands for the purposes of education, the Senate will be satisfied that Maryland and the other states, which have not had the benefit of any such appropriations, are entitled to ask of the general government, to be placed on an equal footing with the states, which have already received them.—They believe that no one, convinced of the justice of such a measure, can question its expediency; nor can they entertain any apprehension, that an application to Congress, supported by the combined influence of all the states, which are interested, would fail of success. For the purpose therefore of drawing the attention of the National Legislature to this important subject, and of obtaining the co-operation of the other states, your Committee beg leave to recommend the adoption of the following Resolutions:

Resolved by the General Assembly of Maryland, That each of the U. States has an equal right to participate in the benefit of the Public Lands, the common property of the Union.

Resolved, That the states, in whose favour Congress have not made appropriations of land for the purposes of education, are entitled to such appropriations as will correspond, in a just proportion, with those heretofore made in favour of the other states.

Resolved, That his excellency, the Governor, be requested to transmit copies of the foregoing Report and Resolutions to each of our Senators and Representatives in Congress, with a request, that they will lay the same before their respective Houses, and use their endeavours to procure the passage of an act to carry into effect the just principle therein set forth.

Resolved, That his excellency, the Governor, be also requested to transmit copies of the said Report and Resolutions to the Governors of the several States of the Union, with a request, that they will communicate the same to the Legislatures thereof respectively, and solicit their co-operation.

All which is respectfully submitted.

V. MAXCY, Chairman.

IN SENATE, Feb. 9, 1821.

Read the third time and assented to.

By order, J. N. WATKINS, Clk.

BY THE HOUSE OF DELEGATES,

Feb. 13, 1821.

Read the second time and assented to.

By order, JOHN BREWER, Clk.

OYSTER SHELLS.

A correspondent wishes to be informed whether any experiments have been made in grinding oyster shells, to be used as manure, instead of burning them into lime.

W. R.

THE SHEEP OF PERU

Are exceedingly valuable, and ought to be introduced into the U. STATES OF NORTH AMERICA.

(Continued from page 76, No. 10.)

THE ALPACA.



The stature of the Alpaca is something less than the Llama, its ordinary height is about 4 feet, but the length of the body rather more—sparkling eyes, bluish with features beaming a general appearance is not so noble, but it is nevertheless a far more interesting animal.

The head of the Alpaca, resembles the common sheep more than that of the Llama, it carries its ears more erect, and the expression of its face is much softer. Its fleece is peculiarly long, and constitutes, in point of colour, the greatest variety of the whole four species of Peruvian sheep, and when the wool and hair is at its full length, it appears twice as corpulent as the others. It hangs in large flakes down the sides, rump, and breast, from 8 to 12 inches long, and in proportion to the others, it yields as many pounds as they do ounces of wool.

The Alpaca has a greater variety of colour than the other species, and occasionally is found a beautiful white.

Its hair is as fine and soft as that of the human head, it out tups the delicate wool that is underneath, but can easily be separated.

Among the Indian tribes of Casco, the black Alpaca is the colour they prefer, but the cinnamon colour is most valued by the traders in wool.

No quadruped in the globe, is possessed of a more interesting figure than the Alpaca, when freed from restraint, and bounding in his pasture grounds—he is grateful for the attention

and caresses of his keeper, and appears unhappy at his absence. His large, black and feet, but the length of the body rather more—sparkling eyes, bluish with features beaming a general appearance is not so noble, but it is nevertheless a far more interesting animal. so in Peru does the Alpaca afford the finest allegories and pleasing similes in the Peruvian language.

Some of the former Incas adorned the white Alpaca as a presiding divinity, which had descended from the *Hanan Pacha*, or upper world, and had come among them as a mark of special favour to Peru.

Even in the present day, although they are occasionally used as beasts of burthen, yet the Indian is careful not to overload them (their usual load being about seventy-five pounds) and when he discovers that the animal is fatigued, he will take the load from his back and carry it several leagues.

The picked wool of the Alpaca, whether dyed, or in its natural colour, produces stuffs of exquisite gloss and fineness; it is much more valuable than any of the other species of wool, except the Vicuña. We shall more particularly notice the value of the Alpaca wool in our concluding dissertation on the importance of South American wools, and we feel perfectly confident of the facility with which this animal as well as the Llama can be imported into the U. States, and that they will increase rapidly, as has been the case with the Merino.

(To be Continued.)

ADDRESS,

Delivered by WILLIAM J. DANGERFIELD, Esq., at a meeting of the Prince George's Agricultural Society.—Maryland, May, 1821.

GENTLEMEN,

We are here met, as the Agricultural Society of Prince George's.—The chair, then, with which you have recently honoured me, directly imposes the duty of pointing your notice to some at least of the numerous modes of practice, which I may deem most immediately and permanently connected with a prosperous state of the rural economy of our county.—In attempting the performance of such a duty, I am very well aware of the disproportion between its magnitude and my own humble capacity to do complete justice to its views—yet experience, Gentlemen, emboldens me to hope indulgence from your well known candour and liberality.—In the execution of my task, I shall have to direct your attention to error, as well as to propriety in practice, a thing at once somewhat delicate and difficult. The capacity of judging, to be exercised in this case, being derived mostly from the results of my own observation and experience, I shall confine myself within a narrow sphere, and to very plain matters. It is not intended, therefore, to touch on the refinements of Agriculture, to be met with in the arts of manuring, or economising in the modes of culture, or in any other of the various branches of a highly improved farm-management. It will, I trust, suffice for the present, to confine myself to such courses of practice, as may furnish a solid foundation, for a superstructure of refinement, to be reared thereon, at a future period, when our art, now in very tender infancy throughout the county, excepting a few branches of cultivation, shall have made some considerable progress.

Before I enter upon my subject, let me, Gentlemen, congratulate you and the rest of our brethren, on the very auspicious period in which we live; auspicious not relative to the present prices of the products of our calling, but the full culture it is receiving, in consequence of its vital importance, throughout the whole civilized world. In no period of the history of man, has it commanded so much attention. Mind of every description is exerted in its cause; from the profound philosopher, who enlists in its service all the aids of chemistry and mechanical philosophy, and generalizes on particular facts with the most distinguishing ingenuity, down to the practical investigator of every variety of character. Shall we then Prince Georgians resist, at the same time, the dictates of self-interest and generous patriotism; by remaining supinely incurious and inattentive to the zealous culture, which the low state of the art amongst us demands? The more agricultural institutions are multiplied, and their objects zealously presented, the more numerous will be the interesting facts developed by their researches; and the greater the philosopher's power of stripping the art of its uncertainty, and bestowing on it the precision and accuracy of science.—Whist on this topic, permit me, to notice an advantage of no small magnitude, within

every one's reach, the reading of the *American Farmer*. This paper gives us whatever is worthy of our notice from Europe, and is the medium of communication, on agricultural subjects, to every section of the United States.—In all societies of this sort, there is a provision made in their constitutional articles, for a correspondence with other similar societies, as well as with individuals. Such a provision is now unnecessary. The "*American Farmer*" binds all such associations together, by making the researches of one, the common property of all; and every individual can, through that channel, get an answer to any reasonable question he may choose to propound.—If, then, it should continue to be conducted with its present zeal and ability; and persons be encouraged to make communications through it, on the principle of "*valent quantum valet potuit*," that is, to pass for as much as they are worth; such communications being subject to fair, candid contradiction and discussion only, unmixed with satire, malignant wit or ridicule, it will be of incalculable advantage to our community, and I hope, of no small emolument to its meritorious proprietor.—Farmers, especially such as are most apt to have valuable information to impart, are a modest, timid race, relative to appearing before the public in print, there exposed to contradiction and criticism.—Benevolent feeling then, indeed *naked justice* demands a delicate, liberal and candid style, in the use of those legitimate instruments of investigation, from all those who may deem it proper, or necessary to use them.

Now more directly to my subject. In the first place, gentlemen, I must notice the plough, which is to good agriculture, what a good foundation is to a valuable edifice.

After paying a justly merited compliment to the practice of a number of cultivators within the county, who make use of good ploughs, and urge them by adequate teams, I am still compelled to state that this invaluable instrument is, generally speaking, not sufficiently attended to, amongst us. The Enfield, or as it is more commonly called, Carey Plough is getting fast into general use. This instrument is much superior to the country ploughs, formerly in use; but by no means as good as several others readily within our reach. I claim a right from experience, to speak of the Carey Plough.—It has been used by me, at different times for ten or twelve years past, and for its size and weight is an efficient instrument, especially as a cultivator, in light lands that are free from turf or stone. This idea I believe is consistent with its origin, it having originated, perhaps as a plough very applicable to the sandy grounds, in the neighbourhood of Enfield, on the Connecticut river. It is according to my experience, expensive in the frequent repairs it requires, and too small and light, to do work in the first stile, especially in stiff or stony land. There are many kinds of first rate ploughs at our command, namely, the Peacock, Freeborn and Davis ploughs. The latter is best suited to my task. It is simple, strong, durable, very efficient and cheap. I am disposed to think, that its resistance to the draft, when tested by the dynamometer, will be found less than that of

many others of equal weight.—Before I leave this topic, I must say a word or two on deep ploughing, which, strange to tell, seems to be a controverted point.—I have no objection to investigation on this subject, yet have always considered this question as living within a nutshell. If your soil be thin, and there still be a sterile subjacent earth, why cover such soil with such earth, to the certain injury or destruction of any thing you may put into it? But if your soil be deep, or if under a thin soil there be a fine clay, or any other means of improvement, here, ample and incontrovertible experience gives its full sanction to deep ploughing.

I come next, gentlemen, to a very interesting topic, the propriety of raising stock of different sorts with the view of improving our agriculture. This subject involves several important points of discussion, in connexion with which, I apprehend there is no small share of prejudice, in the minds of many of our farmers and planters. The origin of this prejudice, if it be one, for I am disposed to speak with diffidence on all controverted points, is in the clover and plaster system, which we have borrowed principally from Loudon County, Virginia. This system has also been called the enclosing plan, its enclosures being, as practised with us, for the most part, not as it would seem natural they should be, to pasture, at proper times, different kinds of stock within them, on such portions of grass, as might be allotted to their use, but to exclude such pasturing nearly altogether. What have been the effects of this system, and what are to be its effects hereafter, if it can be persisted in? Its effects have certainly been, on all reduced lands originally good, and suited to clover, or in common-place phraseology, suited to clover and plaster, to restore them to their original fertility. What did the original fertility of such lands depend on? It depended on a happy combination of the primary earths, which were well charged with dead vegetable matter, ready to become the food of such plants as man might choose to cultivate. Can the fertility of such lands be extended, by this clover system, beyond its original state? It might; I suppose, by a very great and expensive incorporation with them of dead vegetable matter; either by repeatedly ploughing in green clover, or suffering crop after crop to fall on them and decay.—But when you shall have thus obtained this higher grade of fertility, what does the unerring evidence of facts and experience say of the products of such lands, or rather of lands naturally fertilised by vegetable matter, in a very high degree which amounts to the same thing? Why, that they are not high as great, nor as certain, especially in the parts of the plants most essential to man's use, as where land has been manured; that is, has had the same dead vegetable matter applied to it, in conjunction with dead animal matter, or to use a very significant phrase, when it has been animalized.—It is true, that a high grade of vegetable fertility, if I may so express myself, suits some plants better than others, for instance, corn, tobacco, hemp, &c.; yet who is ready to say, that manure would not, except in very rare instances,

greatly augment and ensure a crop of those plants?

I have endeavoured, thus briefly, to shew what have been the leading effects of the clover system, practised to the exclusion of stock, kept on a farm, for the extended purposes of domestic comfort, pecuniary profit, and for converting all its offal into good manure. It remains to shew, what would most probably, be its effects, if it could be persisted in throughout any considerable extent of time.—Its effects would be, if there be any truth in the above reasoning, or correctness in the above statement of the reports of experience, to limit the productiveness of our art, *in the direct ratio of the increased productiveness of land manured in the foregoing defined sense of the word, over land fertilized only, by having dead vegetable matter incorporated with it.* But it would seem, that the God of nature, in his infinite benevolence has chosen to prevent such a limitation. He has provided that land shall tire, or get sick of clover. The clover system is a labour-saving one, and man full of the love of ease, would be too readily contented with the fertility of the soil, which he could effect through its instrumentality. The land has, in some degree, already tired of clover in my hands, and I doubt not, but it has done the same with others. Indeed, I have been so informed by other persons. Success, then, in the culture of this grass, drought out of the question, is by no means in proportion to increased fertility in the land, and judicious care in the management of the farmer. The fact of lands tiring, or sickening of clover is well known among the English farmers, and if it is not already well known among the American, the day in all probability, is not far distant when it will be. It is so well known in British husbandry, that Arthur Young, a very comprehensive and sagacious observer, has noticed in his Farmer's Calendar, the means, which the ingenuity of the husbandman has devised, to counteract it with much success; namely, manuring to increase fertility, and deep ploughing, to form a new surface, a circumstance, that strongly though indirectly, compliments the efficacy of both of those invaluable practical principles. I know it to be a position maintained by respectable authority within the county, that by enclosing and keeping stock from clover, its tobacco lands may be kept up at pleasure. This is a position, which I think time is about to falsify, for the reasons already stated, and for the additional one that the climate is out illy adapted to that grass. If our lands do not tire of clover, that grass will, in all probability, get heartily tired of our climate. Numerous already are the inquiries about substitutes for it.—Let us suppose, that our farms will contrive to produce it as well as formerly.—Would it in that event, be the true interest of our agriculture, to exclude the rearing of stock to the degree contended for by the clover and plaster system as practised, or rather recommended by many in Prince George's? I answer *no*. If man be ready, energetically to pursue his best interests in agriculture, let him rear animals and vegetables concurrently.—There is a natural and necessary connexion between

them.—Then, “those whom God hath joined together, let no man put asunder.” The farmer, that is practical in a truly philosophical sense of the word, should never lose sight of the great operations of nature, but ever act in the strictest conformity to their instructions. The vegetable kingdom is ever bringing forth new productions, to be consumed by animals, to die, waste and decay: when mixed with animal excretions they are destined to give birth to new crops, that are in their turn equally destined to nourish existing and succeeding races of animals.—It is by attending to this round of nature, and making the most of its benevolent instructions, that agriculture will ever make its most rapid progress. I know not a better definition of this primeval occupation of man, than that which says, “‘tis the art of producing, with the least possible expense the greatest number of vegetables and animals, best adapted to the uses and purposes of man.” Let us, then, cultivate clover as long as it will consent to be cultivated by us, by ploughing deep and well, diligently making and applying a proper rotation of manure, and by every other sort of fostering appliance, to the use of which experience may give her sanction. Let us also rear animals, suited in number and kind to the localities of our farms; to give us domestic comforts, to consume and convert into manure our offal produce, and to bring us pecuniary profit in such shape as our relative situations to market may direct. As connected with the rearing of stock, we should most diligently bestow observation on our indigenous grasses, which will ever be found suited to our climate. Nature seems to have distinctly decided, that the blue grass shall become a valuable pasture grass among us, and that in an advanced state of fertility, it is to give place to the green sward, a most valuable grass, which in our pasture grounds could be much protected against the scorching drought of the climate, by interspersing them with the locust tree—observations made on the effects of the drought of the two last summers clearly point out this fact. I will now notice another objection, often met with among tobacco cultivators, to the course for which I have claimed your most serious consideration. It is stated by them, that tobacco is so much more valuable than any thing else they can make, that their attention should be given to its culture exclusively, with the exception of Indian corn and hay; enough of the former to feed their labourers, and of both to feed their teams, carriage and riding horses, &c. &c. &c. In this case, the improving and keeping up of their lands are wholly confided to clover and plaster. In answer to such an objection, I would say, that the course of practice recommended would most probably give, with much less labour in its culture, & on much less land, the same quantity of tobacco, & ensure at the same time, all the other advantages claimed for it by its advocates. It is also objected, that tobacco made from manured ground, will not cure as bright.—This objection may be entitled to some weight, when it is the first crop after manure; but has no weight at all, when it is taken after grass, which I contend, provided the land be ploughed in time, and afterwards quickly and well cultivated is

a good preparation for the tobacco crop.—All that I have said relative to the rearing of stock could be sustained by much illustration, furnished by the history of European, particularly British, as well as by that of American agriculture, more particularly in the eastern & northern states. But the nature of this address is such as precludes much detail—it is confined by the variety of its topics to general remarks and reasonings, almost exclusively.

I must now gentlemen, claim your attention for what I have to say, as briefly as possible, on the variety & extent of stock which the true interest of our agriculture in my very humble opinion, requires to be raised on our lands. I shall commence with the hog—this animal is indispensable—he is wanted essentially for our family convenience, and he might with a number of us, be reared very profitably for sale—there is ample evidence on agricultural record, of his having been raised with profit by those who bought every article, with which he was nourished. In many parts of G. Britain, where it used to be raised, only on the save-all principle, according to Adam Smith, it is now, according to subsequent writers, a numerous & profitable race. I would recommend an inquiry, whether in most instances with us, he ought not to be raised in sties. This plan does not exclude grazing occasionally, under the care of a hog boy, a mode in my opinion very practicable and economical—the hog is an animal of great docility, and by consequence very easily managed—I could offer to your notice some very interesting details, on this animal, from an European book, put into my hands by my friend Mr. Thornley, an Irish gentleman, who has settled among us, but the necessary plan of this paper puts it out of my power—I shall content myself, therefore, with the statement of a few leading facts, relative to this species of stock, and leave their application to the enterprising and ingenious.—The hog in confinement must be kept clean, and in winter dry and warm also. He must be well nourished in infancy, and never suffered to get poor, which, provided the breed be such as it ought to be, namely, one that gets its growth and fattens quickly, may be done with little expense of food. I have fed, every day, seven shoats with my own hand, for some months past—they have had only two ears of corn a piece per day, with boiled ruta бага in winter, and offal vegetables from the garden since; they are in good growing condition, and that quantity of corn, with occasional grazing, and the same offal vegetables will keep them on well, until turnips and pumpkins come and the fattening season arrives. With this kind of stock, all the refinements of modern agriculture intimately connect, such as the root culture, the application of heat, through water or steam, to the cooking of those roots for their food.—I studiously steer clear of all such refinements, for the present, and shall be well contented, to excite only a moderate share of additional attention to a stock which I deem so indispensable to the comfort of our families, and from which, in many instances, much profit may be derived. It should not be forgotten that the hog is an omnivorous animal, and that his full health depends on the occasional use of animal

food, which he never fails to make use of when at large—he should consequently have, when confined, all the animal offal of the kitchen, and that which proceeds from domestic butchering. I have always the dead animals from accident or otherwise, thrown into my stock-hogs, when in confinement. I have occasionally given them, with advantage, a salt herring or two a piece. I shall now dismiss this part of my subject, by recommending, that these animals, when taken out to graze be ornamented with jewels, alias, iron-rings in their noses, to prevent that hostility which will otherwise arise in the breasts of their masters, in consequence of the injury done by them to his fields.

I come next to sheep, in which I have had no small share of experience; I therefore, unhesitatingly recommend them to your notice, not because tobacco is down & wool is getting up. The agriculture, that I would recommend must be a steady, consistent principle, not wholly devoted to one thing to-day and another to-morrow, but such as appreciates all objects as they should be appreciated, by their own intrinsic, permanent merits; we must have sheep for their wool and for their mutton. Our climate demands their wool for our necessary clothing, particularly among us, for that of negro-labour, and such is the present state of our country relative to its manufactures; that in all probability the fine wools will ever hereafter command a good price. The extent to which this animal should be reared among us, depends on the localities of each cultivator's farm. As for mutton, I contend that it is on a farm suited to sheep, the cheapest food that can be raised—I have often proved it to be so on my own. The flesh of sheep can be preserved by salt, at any season of the year. It is in the hotter months, when they are generally in the finest order, and at the cheapest rate of expense. From the experience of my own family, I well know, that they could be pickled away like pork at that season, especially in cool cellars, when they make an article of food intermediate in taste to pork and beef, and which is much liked by negroes. The merino race is hardy and thrifty, and bears penning much better than the sheep of the country. The penning of sheep should be practised not only for the purpose of manuring, but also for their protection against the attacks of dogs, which have killed throughout the last winter and spring most of the sheep in my neighbourhood; I have lost none, for several years, since I penned them with my cattle, and others, doing the same, have been equally lucky. I have had no experience of the Bakewell sheep, such as are raised by Mr. Barney of Delaware, but am disposed to think, they would be highly valuable for their mutton, owing to their size and ready disposition to fatten; this variety would suit salting well, for mutton should be very fat, to suit to the greatest advantage. Many useful details relative to sheep, resulting from my own observation and experience, I could communicate, but the limits of this paper will not permit me.

I come next to neat-cattle, which we must have for very important purposes, for milk, butter, beef, and draft-labour, of the most economical and efficient kind. Here gentlemen, let me congratulate you, on

the facilities afforded, by the present period, of procuring the most desirable varieties. Our Vice-President has long since afforded us a facility of this sort, which I am sorry to remark, has been almost wholly neglected. Let me also be permitted to advert to the editor of the American Farmer and others, who with a very laudable and even patriotic zeal, afford the same facility at their stock farm, near Baltimore, not only relative to this, but other sorts of very valuable stock. This kind of stock should certainly be reared, to the extent of supplying the farm with milk, butter, beef, work oxen, and for fully converting all its offal into good manure. On some farms, where there is a plenty of grass, cheese might be profitably made, and fattened cattle sold to the butcher. I am aware, that the very depressed prices of every article of this sort, at the present moment, discourage such notions, yet the present state of things is not to last forever, nor, I hope, even long. Let this fact never be forgotten; such productions of our art constitute the necessities and conveniences of life, and have a connexion with the principle of a rapidly increasing population, which a mere luxury never can have.

As to horses & mules, the last varieties of stock I shall notice, I would recommend the rearing of as many as may be wanted on a farm, provided there be no reasonable objection to doing so, arising from the particular situation of such farm. This recommendation stands on the sound principle, that a farmer, I might say planter also, should make, as nearly as possible, every thing he wants—I know, that when tobacco was from ten to eighteen dollars, such a principle might have been hooted at in Prince George's. I think however, it may be treated with a little more respect at present. Tobacco has ever fluctuated in price, and ever will. It is wisdom then, in a good system of agriculture to guard against, by all the precautions of a sagacious prudence, the adversities of such sudden changes, which, when they come upon us, are severe indeed.

As connected, pretty intimately, with most that has been said, I deem it proper to notice an argument, which the tobacco cultivator, not only in Prince George's, but elsewhere, has supported in favor of an almost exclusive culture of that plant; he contends, "that the domestic demand, in a foreign market, for the best Maryland tobacco, bears such a proportion to the quantity of land capable of producing it, that it must not only ever pay better than any other produce, but command a very high price." The present state of things as to price, is in contradiction to this argument, and every day's experience will, most probably, hereafter inform us of lands, in other parts of the United States, as well as in South America, capable of producing tobacco as well, if not better suited to that particular market than that of Maryland. Having principally noticed the immediate and direct advantages of stock, let me say a word or two on the grand subsequent and indirect one, the manure, that all sorts of stock enable us to make—oxen, when well supplied in their pails with corn stalks or rye-straw, the offal of two plants especially adapted to the lands of our country, make a great deal of manure. Sheep supplied with wheat straw, or rye-straw trodden;

and pastured, in open weather, throughout the winter on a rye-field make also, a considerable quantity of excellent manure. Horned cattle well littered with corn-stalks and straw of different descriptions, especially if fed occasionally with turnips or pumpkins, make an abundance of that very valuable product on a farm—horses and mules will do the same, if carefully attended to. The most interesting feature of the improvements that are carrying on, in such a vivacious spirit, in the garden spot of English Agriculture, the county of Norfolk, is the conversion, by the most judicious means, of every thing that will make it, into manure—a kindred spirit, here, would do as much good for us as any other thing whatever.

I cannot conclude gentlemen, this address without some remark on the times, as they regard agricultural people. For those who are out of debt, they are well enough—increased industry and economy must and will make some compensation for diminution in the price of their produce. But in the case of those that are in debt, the pressure is great and severe indeed. Here the only remedy that seems rationally to present itself, is in part the same as in the former case—increased industry, with the most vigilant economy, may do something; but to do enough, they must be aided, as I hope and trust they will, by the magnanimous and generous sympathies of creditors, who should make the case of their debtors, considered relative to the peculiarity of circumstance in which it is placed, their own, and extend to it that liberal indulgence, which both the religion and the morality of the gospel so strongly inculcate.

WM. A. DANGERFIELD.

May 21, 1821.

Mode of Propagating the Cherokee Rose.

DEAR SIR—The cuttings of the Cherokee Rose you were so kind as to give me last December, I put into the side of a bank of earth that was thrown out of a large hole—they were placed on the south side, and about one foot above the level of the lot, buried about six inches—and laid horizontally. In March I examined them and found they had formed good buds—they were then removed to a bed of rich earth, and placed two inches beneath the surface, no part being nearer—they have now shoots above ground, in leaf, with roses formed on them.

They appear by this to be admirably adapted for transportation and to form hedges. I hope the flowers are without smell, if not they will bring a great enemy, the Rose-Bug.

S. V. S.

For the American Farmer.

CLOVER SEED,

How to Gather it, Clean and Sow. CLOVER HAY, how to Cure.

MR. SKINNER,

In answer to some enquiries, and many observations, respecting the best method of saving clover seed—I will state what has been my practice, and I have had some experience on

the clover crop, having cultivated that grass on a large scale.

Let the clover intended for seed, stand until sufficiently ripe, then have it mowed in the usual way, with grass scythes, and raked into winrow as fast as cut, and secure it in stack, or under cover, as soon as convenient, and before rain if you can. You may stack it as soon as you please: it will not injure if cut ripe, but if you suffer it to lay under much rain, you will lose much of the seed. When it is wanted for use, spread it on the treading floor, and tread it with horses, in the manner we tread wheat—it is soon done—separate the straw from the chaff and seed, and heap the chaff on in a pyramidal form, at the treading floor, if you have not house room, to be used as may be necessary—it will remain uninjured by the weather for a long time—the rains will not penetrate the heap if the surface is kept smooth.

I would prefer sowing the seed in the chaff—the covering of the seed retains moisture, which causes it to vegetate quicker than the clean seed.

Many farmers make use of boxes, as described in the Farmer, and other agricultural publications, that I think, must be a tedious method. Some cut the ripe clover when wet, and let it remain in the field until rotted, and lose a great proportion of the seed. And Col. Taylor, in some cases, makes old women collect the seed in trays, but I believe cutting it with scythes is the most economical method—I have saved considerable quantities in that way, and any farmer may save his seed at very little expense.

As the season for securing the clover crop is approaching, I will remark, with great deference to those who have had more experience, that clover hay is not so difficult to secure, as many suppose it is—a very erroneous practice has prevailed, of spreading and turning it, and exposing a thin surface to the sun, until all its juices were extracted, and the stem deprived of all its leaves. But necessity is the mother of invention, and experience teaches. I believe it was in the year 1808, I had a very large crop on hand, and was obliged to let a considerable proportion lay in swarth, and not scattered.—The weather was favourable, and I after it had remained a day and a half, or two days, in swarth, it was raked into winrow and cocked. It was taken from the field without being opened again, and was very fine well cured hay—and I have generally, ever since, pursued the same method, unless when the crop was very luxuriant, and had fallen—but clover which will produce from one to two tons per acre, will cure by this practice, if the weather should prove favorable, and it is difficult to save it by any method, if it is otherwise.

If this management will answer to secure clover hay, I need not add that Timothy or Herd grass, can be more readily cured. I have seldom, since 1808, spread either kinds of grass when cut at a proper time.

A.

How should lime kilns be constructed?
Nuburn, N. C. April, 1821.

JOHN S. SKINNER, Esq.

SIR,—Agriculture, the parent of the human race, and the first of arts, needs encouragement.

It supplies us with food and raiment—with necessities and luxuries, but not gratuitously. It exacts obedience to its laws, as a condition precedent to a supply of our wants. Its justice is beyond suspicion, for all the indolent and refractory are discarded from a participation in its bounties, and its true votaries do not fail to be amply rewarded. It is not only just, but it is beneficent—for the more we give to it, the more do we receive from it. Its parishioners are supplied with a very sparing hand.

I have on my farm, rock, which I convert into lime; but the kiln in which it is burnt, from its construction, leaves a residuum unburnt, occasioning a loss of rock, labour and fuel. I should be glad to see in the columns of your paper, an account of a kiln so constructed as to burn all the rock put into it, as I am about to make a trial of lime as a manure.

Respectfully, Your Obedient Serv't.

G. W.

For the American Farmer.

OSZENA,

And the virtue of CARROTS in curing Ulcers.

The above disease as a limb of scrophula, affects the glands and soft bones within the nose, and produces a foetid discharge which excoerates and inflames the upper lip. It is a most severe and odious affliction, and is more common to young females with light hair and fair complexion. The author of this paper was called to a young lady who had to leave her school. Knowing the excellence of the carrots in changing the humors of ulcers, he prepared a snuff by drying carrots before the fire, till they would powder—by the use of this, the young lady got rid of one of the most disagreeable concomitants and was enabled to return to school in a short time; and by general remedies, such as bark and steel, muriate of lime, and occasional purging when the inflammation was more considerable, and especially after taking cold—she got rid of all the symptoms for eighteen months, when they returned, from taking cold and too free exposure in severe weather.—The same remedies were applied again with better success, as no farther disease has ensued although three years have since elapsed. This paper is recommended to the attention of the Faculty.

MEDICUS.

HOW TO SUPPLY PONDS WITH FISH.

Toward the latter part of April, take the root of a willow which has grown near the water, and is well filled with fibres: shake the dirt from it, and fasten it to a stake, in a river, or fish pond; and the fish will assemble around the root, and deposit their spawn in the fibres—in a few days afterwards, take the root from the river or pond, and remove it to the one you wish to supply with fish, plunging it about a band's breadth below the surface of the water.

Five days after, or thereabouts, you will perceive a great number of little fish.

Take care you do not leave the root too long in the first river or pond for fear that they may become animated and detach themselves from the root.

J. S.

Extract from Fort Osage, 17th March, 1821.
The day before yesterday, the mercury (in Fahrenheit's) stood at eighty, nearly all day. Yesterday morning at eight, it was down to thirty-two. This morning at nine, it is at thirty-three, and snowing very fast. Such sudden changes are by no means rare here, and yet they produce no sickness, not even common colds. Fort Osage is in Lat. thirty-nine degrees—nine hours—thirty-four and a half minutes.

THE FARMER.

BALTIMORE, FRIDAY, JUNE 8, 1821.

PRICES CURRENT.

Flour, from the wagons, \$4—Whiskey, from ditto, 24 cents per gallon, exclusive of barrel, 27 cts. do. including barrel—Hay, per ton \$18 a 20—Straw, \$7 a 8 per ton—Wheat, White 80 to 83 cts. p. b. Red, do. 77 a 80 cts—Corn, white, 31 a 32 cts Yellow, 32 a 34. Oats, 23 a 25—Rye, 40—Barley, 25 to 30 p. bu.—Cod Fish, per quintal, wholesale \$3, retail ditto \$4—New-England Beans per bushel, \$1 12½—ditto Peas, 75 cents—Plaster in stone \$6 per ton—do. ground, \$1 35 per barrel, 33 cents per bushel, \$8 per ton—New Orleans Sugar \$9 to 12 50—Muscovado do. \$7 50 to 9 25—American White Lead, \$12 50—Ground, do. \$13 a 14—Lined Oil, 75 cts—Feathers, 40 to 45 cts—Potatoes, per bushel, 62½ to 75 cts—Shad, new, \$6—Herrings, \$2 to 2 25, declining—Fine Salt, 50 cents per bushels,—Ground Alum do. 50—St. Ubes, 50—Cadiz, 50 to 55—Turks' Island, 75 cents per bushel—Live Cattle, 5 to \$5 50—Beef, 8 to 10 cts—Hams, 10 to 12 cts.—Mid Hugs,—10 cts—Butter, 20 to 25 cts—Eggs, 12½ cts—Cheese, 8 to 10 cts. pr lb.—Tar, \$1 50—Turpentine, \$1 87½ to \$2; Pitch, \$2½; Rosin, common 1½, bright do. \$3 per barrel.—Farnish, 25 cts—Spirits turpentine, 33 cts per gal.—Cotton, (good Upland,) 14 a 15 cts. very dull—Rice, 3 a 3½ cts.—Ship and flooring Plank, \$25 to 27—Shingles, best \$3, to \$7, com. \$3 to 4½ p. M.

No change in the price of Maryland Tobacco since last report. A few hlds. of Virginia Tobacco sold at \$6.

A FARM FOR SALE.

THE subscriber will sell the farm on which he resides, containing three hundred and twenty-nine and a half acres of land. The whole is in a high state of improvement; the soil is well suited to tobacco, wheat, corn, &c. and every part of it has been improved with clover; plaster acts powerfully on it, and has been used liberally. The buildings of every description are such as to accommodate a family with comfort and convenience.

He will also sell a FARM on Elk-Ridge, within eight miles of Baltimore, and containing between 11 and 1200 acres of Land. The place has many advantages, would be well calculated for a grazing farm, has extensive meadows and a mill seat on it, would produce tobacco of superior quality. It abounds in wood, and is near enough to the water to make it of easy carriage to Baltimore, being within a mile and a half of a landing, and binding on the Turnpike Road to Washington. He would also dispose of a water LOT and WHARF, in Elk-Ridge Landing, the most convenient in the place. Terms made liberal by application to the subscriber.

D. MURRAY, West River.

Printed every Friday at \$4 per annum, for JOHN S. SKINNER, Editor, by JOSEPH ROBINSON, at the N. W. corner of Market and Belvidere-streets, Baltimore, where every description of Book and Job PRINTING is executed.—Orders from a distance for Printing and Binding, with proper directions promptly attended to.

A M E R I C A N F A R M E R.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua ai bona norint
Agricolae." . . . Vitis

VOL. III.

BAITIMORE, FRIDAY, JUNE 15, 1821.

NUM. 42.

AGRICULTURE.

A New Theory of Agriculture, in which the nature of Soils, Crops and Manures is explained; many prevailing prejudices are exploded; and the application of Bones, Gypsum, Lime, Chalk, &c. is determined on scientific principles, by W. GRIENTHWAITE.

(Concluded from No. X. page 75.)

CHAPTER IV.

ON SPECIFIC

Vegetable Substances.

Specific Manures.—Perpetuation of Crops, &c.

The subject of this chapter, which I am now about to discuss, has never yet been regarded by practical men, with any reference to the improvement, and guidance of agricultural operations, and yet it will be found to be one of the greatest importance; one upon which the success of those operations depends, and with which, therefore, he must be well acquainted before he can expect either the most abundant, or constant returns.

Agriculture may be considered to be a system of operations calculated to convert manure into vegetable matter. We have seen that the land, or soil, performs the part of an instrument in the process. That all the care in its preparation is only directed to assist the action of the manure; that water is a mere medium for conveying it as nourishment to plants, and that heat facilitates their action upon it.

This view of the business of agriculture will open to us many objects which have hitherto escaped observation, because the nature of such business has never been properly understood.—What is done spontaneously, and without any co-operation of man, is called natural—what is done by his exertions, is called artificial, as if the same laws did not govern both. This has been a great impediment in the progress of science. It has repressed enquiry, by pronouncing it to be vain; and exertion by declaring its inefficiency.

Until within these few years the elements of bodies had not been discovered. The nature of compounds was but little investigated, and the transmutation of matter, if not openly acknowledged, was only tacitly denied. The sun of chemistry has at length arisen above our horizon, and has dispersed much of the darkness of former ages, and shed an illuminating ray over the various phenomena of nature.—Elements as the term implies, cannot be changed into each other. They admit of no alteration but as regards magnitude, and figure.—Hence when one substance composed of certain elements is designed to be transmuted into any

other substance; as sugar, by fermentation, into alcohol, or acetic acid; or manure into grain, it is obvious, that the elements of the second must necessarily be contained in the first, for if they be not, the transmutation cannot take place.—This will render it evident that a knowledge of the elements, or constituents of bodies, which are intended to be changed into other by certain processes, should be previously possessed in order that the processes may be conducted with a probability of success. We are therefore led to enquire into the nature of certain crops, and to consider, whether their peculiar elements be provided for, in the manure as it is now prepared by agriculturists. If they be not, it is but reasonable to infer, that the failure of many crops may be referred to the deficiency of certain elements in the manure.

If all crops were composed of the same elements, this discrimination would not be needed—and upon such a supposition the practices of husbandry have been uniformly conducted, and are now conducted; with what disadvantage will appear in the course of this chapter.

To illustrate the preceding reasoning, the wheat crop may be selected with considerable advantage, as it is that which is not only the most important to the interests of mankind, but because the presence of particular substances in it are better known, and more generally acknowledged. If we examine the straw of wheat, we shall find it composed of what may be considered common vegetable matter, or matter composed of oxygen, hydrogen, and carbon, with a small quantity of carbonate of lime—so, also, if we examine the constituents of the grain, we shall find them distinguished into starch, and gluten; and if we carry our researches still further, we shall find that the elements of the starch are precisely the same with the elements of common vegetable matters, but the elements of the gluten will be found analogous to those of animals; or in addition to oxygen, hydrogen, and carbon, there will be found nitrogen. The production of this nitrogen as has been already observed, cannot be effected by mere common vegetable matter, and, therefore, the manure employed in the production of the straw and starch, could not produce the gluten also. This is a fact which has never, I believe, been attended to, either by writers on the theory, or men engaged in the practice of Agriculture. If the presence of gluten were accidental, or the value of the flour did not depend on it, then little care need be taken to provide for its formation; but as it is required to be constantly present, and the value of the flour does essentially depend on it, therefore a provision ought to be made for it. In quantity it is not inconsiderable, but composes nearly one third part of the grain. That the operations of husbandry, as regard wheat, should be conducted without any reference to

this peculiar substance, is very remarkable.—That the failure of crops has never been ascribed to its deficiency, is still more wonderful.—What has been advanced concerning manures in general, may afford some explanation of the cause of this neglect. The process of vegetation, and the constituents of vegetables, are not known to the practical farmer, because they have been difficult to ascertain; and the nature of his manure is involved in the same obscurity. He supposes it to contain every thing needed for every crop.

That the gluten of wheat flour may always be present, it is necessary that a quantity of animal substance should exist in the manure applied to the land, where the wheat crop is intended to be raised. That a certain portion of such animal substance is applied, is proved from the fact of gluten being always found to exist in that grain—but, it is highly probable, that the quantity is not always sufficient; and if not sufficient, the crop will be defective either in quality or quantity. If we pursue our investigations a step farther than we have done, we shall discover that phosphate of lime is as constant a constituent of wheat flour as gluten itself. Phosphate of lime, therefore, is as much needed for the production of a crop of wheat as the substances which supply the starch and gluten. It is not a little remarkable that this phosphate of lime, is soluble in no known fluid, except thro' the medium of an animal substance, as gelatine, &c. and consequently the same animal substances which furnish the elements of the gluten, will also furnish a medium for the phosphate of lime; which appears to be equally indispensable to the formation of a perfect grain of wheat. It not only furnishes a medium, but generally a quantity of the phosphate itself.

The only substance now employed for the production of gluten, is the urine of stock—the alvine excrementitious matter having been proved to contain little or no nitrogen—this urine is applied either by folding, or mixed with the farm yard manure—in both of which situations, it is constantly forming ammonia, which is dissipated; so that a very inconsiderable part of the whole is retained to answer the purposes of vegetation. I have already alluded to the practice adopted in Flanders, of saving it, and have no doubt that the same practice will soon become general in this country.

When the utmost attention is paid to prevent the loss of any of the animal substances, accidentally present in farm yard manure, it still remains a question, whether there be a sufficiency for the purposes to which it is to be applied. That there is not always a sufficiency of some kinds of manure is obvious from the immense quantities of oil-cake which are employed as manure. Oil-cake, although a very excellent substance for such a purpose, can fur-

ish little else than nourishment to the straw, and starch of the wheat crop. It cannot contribute to the formation of gluten ; and gluten as has been observed, composes one third part of all that is valuable in the whole crop. This important particular therefore should certainly be ascertained. That enquiry has found a deficiency in animal matters may be inferred from the application of bones &c.

I shall now proceed to consider a point in practical husbandry at once new and interesting. It is that of the specific, peculiar use of animal matter to the wheat crop ; a peculiarity with which agriculturists have been so little acquainted, that bones &c. have been highly recommended for grass, or pasture lands. To discover the injudiciousness of applying such substances to crops indiscriminately, it will be necessary to become acquainted with the fact, that there is no kind of grain except wheat, raised artificially for the purposes of man, or cattle, that contains any notable quantity of any substance analogous to that of animals.—Hence when bones &c. are used on grass lands, or for the barley crop &c. all the nitrogen, with so much hydrogen, and probably carbonic acid gas, as is sufficient to form a subcarbonate of ammonia, will be entirely lost. If bones be the animal matter employed, every one hundred pounds weight will yield about fifty pounds of solid gelatine, of which twenty pounds, at least, will be thus wasted, or two fifths of all that is valuable in the bone. If instead of being employed for grass &c. they had been used for wheat, all this might probably have been saved. This is not mere opinion—its truth is obvious to every one conversant with the chemical nature of bones and grass.

I have mentioned already, that phosphate of lime composes a part of the grain of wheat, and that phosphate of lime is supplied by animal substances. Bones furnish an abundance of it. That this constituent of the wheat crop, as well as several other constituents of different crops, should not be disregarded altogether, although they form very minute proportions of those crops, must appear reasonable to every one who knows, that, in their selections, there is exercised a constant discrimination. That wheat *always* takes up phosphate of lime is a proof scarcely needing further evidence, that it answers some useful, and perhaps indispensable purpose in the grain. It does not exist in the straw ; and barley, or oats, or clover, grown on the same land, at the same time with the wheat, take up no portion of it whatever.

If there had not existed this constancy in the selection of particular substances—if phosphate of lime had sometimes been taken up by barley, or clover ; and sulphate of lime had been found in wheat : then we might have concluded, that the whole was accidental, and being accidental, that they assisted in no way whatever the formation of other parts of grain, nor contributed to promote the general economy of the vegetable. They who are unwilling to admit the performance of certain uses by these substances, must depart from a mode of reasoning which philosophy has long countenanced, and which we must hereafter employ, whenever we are anxious to explore the causes of physical effects.

As little attention has hitherto been paid to these saline bodies as they regard the process of vegetation, and much less as they respect the operations of husbandry, I have, for the sake of distinction, called them specific manures ; and the gluten of wheat, a specific vegetable matter. Hereafter, when a more complete analysis of vegetables shall be made, it is probable, that a nomenclature, founded on these specific substances, may, at least, classify, if not particularize, every kind of plant.

If we turn our attention from the wheat to the barley crop, we shall find fresh evidence to confirm the opinion of specific saline substances being present in particular plants. In the latter of these grains, instead of phosphate of lime, there is always found a small quantity of either nitrate of soda, or nitrate of potassa (salt-petre). Hence we may conclude, that those salts should be present in the soil where barley is to be grown. Whether they be or not, the farmer, at present, is entirely ignorant. These salts, though spontaneously produced by nature in many situations, still require the presence of certain substances for their production—several of which it is as improbable should be accidentally furnished, as the salt itself.

It has been objected, that if this salt be found ever so necessary to the barley crop, yet its expensiveness will preclude the possibility of its being used. This is erroneous. Although salt-petre, if required in large quantities as a manure, would be too expensive, yet in the quantity actually wanted, its price is an object of little consideration. The simple process of steeping the seed in a solution of it, would probably, be sufficient—for which purpose a few pounds would suffice for an acre of land.

What has been just advanced concerning the necessity of particular saline bodies to the wheat and barley crops, may be further extended to other crops, and thus add fresh evidence to support the conclusions already drawn.

It is well known, that bean straw always yields, on incineration, a large quantity of subcarbonate of potash ; but whether the subcarbonate exist in the straw, or be formed by the decomposition of a sulphate, or other salts of potassa, has never been determined. To determine which of these is present in the entire vegetable, would be to furnish information concerning the means of rendering that crop more uniformly successful than it now is. Can prejudice so far operate on the mind as to make it discountenance the belief, that some particular salt is possessed of certain properties capable of assisting the growth of the bean ? If it can, then the same prejudice may reject the belief that soda is necessary to the uile, and sulphur to the hair, and iron to the blood of animals. The quantities are alike minute, and their presence probably alike indispensable.—A deficiency of these in animals would be followed by disease, and, perhaps, death ; and, most likely, the same consequences would attend the want of particular saline bodies in plants.

In the pea crop has been discovered a considerable quantity of superoxalate of lime, and thus, as we pursue our researches, we still find discrimination keeping an equal pace. The

phosphate of lime, nor the nitrate of soda or potassa, has a universal use pertaining to it. They are needed for particular vegetables, but however they may promote the growth of wheat or barley, can afford no assistance to the pea. The pea demands the superoxalate of lime.

As the oxalic acid is seldom found in large quantities in a state of nature, so as to be applied as a manure, it is probable that the pea plant has the power of forming it. This is rendered still more probable from the circumstance that the oxalic acid is composed of the same elements as common vegetable matter, namely, oxygen, hydrogen, and carbon. It may, perhaps, be urged, that similar formations may take place in other salts, and thus render the attention of the agriculturist to these objects altogether unnecessary. But such a conclusion will not be warranted by this example. We every where find a sufficiency of the elements of vegetables ; and to vary the proportions of those elements is to compose a class of bodies very comprehensive in their nature.

—All vegetables and vegetable products, amongst which are gums, resins, starch, &c. together with the changes which they are liable to undergo, are included under them. But what have been called mineral acids, are products of a peculiar kind, and from the strong affinity subsisting between their elements, are seldom found in those elements. It is even a rare instance that the acids are discovered uncombined with other bodies. Sulphur is not often found, except in the neighbourhood of volcanoes ; and phosphorus was never found in a natural state. It could not even continue to exist were it actually produced, if exposed to the atmosphere. These observations will, therefore, completely remove all doubt respecting the necessary, previous existence of the mineral acids, and the salts composed of them and bases, as they are commonly detected in vegetables. They must convince us of the necessity of supplying plants with them ready formed—or with their elements, where a spontaneous generation of them can be effected.

Having shown that in the principal grain crops which interest the agriculturist, there exists a particular saline substance, peculiar to each, so, if we turn our attention to the grasses, and turnips, we shall still find the same discrimination.

San-foin, clover, and lucern, have long been known to contain a notable quantity of gypsum (sulphate of lime ;) but such knowledge, very strange to relate, never led to the adoption of gypsum as a manure, for those crops, any more than that of phosphate of lime for wheat, or nitrate of soda, or potassa for barley. It is true that gypsum has been long, and in various places, recommended as a manure, but its uses not being understood, it was recommended without any reference to crop, or indeed to the accomplishment of any fixed object. It has been highly extolled in America, but for what purposes, and upon what principle, does not appear to be explained. It has been applied to crops of every description, and if it were used with any view whatever, it was that of improving, what is vulgarly understood, by the soil. In this indefinite manner it was recommended at Holkham,

at the sheep-shearing of 1818, and, in consequence of that recommendation, it was put upon land where wheat was to be grown, as well as that where san-foin, clover &c. were to be produced. It was considered as a calcareous substance; and, even lately, doubts of its advantages on soils containing much calcareous matter, have been entertained.

These vague, and unscientific notions I endeavoured to correct at the sheep-shearing of 1818, and afterwards, in a communication to the Farmers' Journal. Thus, although I was not the first to recommend the use of gypsum; for its use had been recommended more than half a century prior to the sheep-shearing of 1818, still I believe, its particular application, had never before been accurately defined. That this statement is correct, will appear evident from the following extracts from my communication to the Farmers' Journal, dated September the 20th, 1818. Alluding to its recommendation at Holkham, I observed, that "it was considered as a general meliorator of the soil, without any reference to the particular crops to be raised on it. It was regarded as a substance merely calculated to alter the texture of the land, an effect which I would call mechanical, to contradistinguish it from that of manure, which is really physical. That it might be useful in particular situations when employed with such an intention, there can be no doubt; but its uses would not be greater than those of common chalk, and not nearly so permanent, on account of its solubility. Being considered in this point of view, it is very likely, that, under a variety of circumstances, a variety of results would be observed, and it would meet with approval, or reprobation, according as the object of the agriculturist, who employed it, was promoted, or defeated. Had its nature been well understood, and its uses been known in the economy of particular plants, it would, *a priori*, have been evident when it would, probably, have led to beneficial results, and when it would, as probably, have answered no good purpose. Neither *wheat*, nor *barley*, nor *oats* &c. would derive any advantage from its use, as it forms no necessary constituent of those grains, but clover, lucern &c. would in the luxuriance of their crops, have borne ample testimony in its behalf. These plants require gypsum for healthy vegetation; for the assimilation of manures to their own peculiar nature, or the development of some of their distinctive characters." That this view of the use of gypsum was not then, nor for some time afterwards understood, I shall prove by quoting a passage from a letter to the editor of the Farmers' Journal, published several weeks later than the extract already given. Speaking of the uses of gypsum as recommended at Holkham, he says "I am sorry to remark, that all the information I have since been able to collect, goes to repress the hopes which were at that time indulged."

The evident advantages resulting from its use are such, as will, no doubt, bring that substance into general request. It is somewhat remarkable, that, in Flanders, a kind of ashes is employed with great success as manure for the clover crop; and which by analysis, have

been found to contain about twelve per cent of gypsum.

It has been said that calcined gypsum loses all the efficient properties which belonged to it before it is calcined, but such is entirely a mistake; if by calcination is understood a mere exposure to heat, however great. If it be previously mixed with carbonaceous matter, and then calcined, it will undergo a partial decomposition, and form a sulphuret of lime; or, if the heat be sufficiently intense, and long continued, a caustic lime will be obtained, possessed of the same properties as caustic lime produced from the common limestone.

The mention of sulphuret of lime will serve, with much propriety, to introduce the subject of the turnip crop. If we examine a turnip chemically, we shall always find a considerable quantity of a hydrosulphuret, or a hydrosulphuretted sulphuret, substances not discoverable in any of the crops heretofore considered, and, therefore, constituting the specific saline substance of the turnip. Its production has never been regarded, and consequently its explanation has not been attempted. Sulphur is known to exist in albumen; and albumen exists in almost all animal fluids; and, in a coagulated state, in most of the solids; at least hair, the nails, &c. contain a very great quantity of it. From the former, it is probable, is furnished all which is found in the manure of the Agriculturist. Lately the practice of paring salt marshes, and burning the sod, has been much recommended as providing a quantity of excellent manure for the turnip crop. It is not difficult to explain the manner in which such manure accomplishes such beneficial effects.—

The sod of marshes which is occasionally covered by the sea, is impregnated with a variety of salts, amongst which are some sulphates: probably of lime and soda. These, by combustion, are converted into sulphurets; and sulphurets when brought into contact with water, evolve sulphuretted hydrogen gas, the very substance which I have observed to be constantly present in turnips; and whose presence, according to the reasoning hitherto pursued, is probably necessary for the successful growth of that vegetable.

The uncertainty of obtaining the requisite quantity of sulphuret, by this process, renders it desirable that some one more determinate should be found, and such is immediately offered us in the sulphate of lime, (gypsum.) If gypsum, as has been stated, be mixed with carbon, (common coals will answer,) and be then exposed to a considerable heat, the sulphuric acid of the sulphate will be decomposed, and a sulphuret be formed, which may then be ground, and applied as a top dressing to the turnip crop, where it will, most probably, effect greater advantages, than are now produced by the ashes of sea marshes.

It may be necessary to caution those who may be disposed to try the efficacy of this substance, against carrying the process of calcination too far, when would completely defeat the purpose intended. In order to ascertain whether it have, or have not been carried too far, a small quantity of the sulphuret obtained, may be dissolved in a glass of water, and a few drops

of any acid may be added to it. If the decomposition has been well conducted, the addition of the acid will extricate a considerable quantity of sulphuretted hydrogen gas, which may be readily recognized by its fetid smell; it resembling that of the Harrowgate water.

Thus then has been established the existence of specific saline substances in a great variety of crops; all of which are particularly interesting to the practical Agriculturist. It would be needless to recapitulate the evidence which has been advanced to prove the essential services performed by those substances. They who doubt the utility of the general and constant operations of nature; who can attach to obvious discrimination, nothing of design, will continue sceptical in spite of proofs however demonstrative. It is highly probable, that if our enquiries were directed to other vegetables, that we should discover the same discrimination. I do not mean that every particular kind of plant would be found to possess a peculiar kind of saline substance. It is probable that there are classes of plants which are benefitted by the same salt. The acquisition of such knowledge would not only gratify the curious, but be extremely useful to the practical farmer.

The information derived from the preceding facts, leads to a conclusion which is of the highest importance as well as of the greatest novelty; namely, the perpetuation of any one crop on the same land, for any number of successive seasons. The reason why a change of cropping has been generally adopted, certainly did not arise out of any *a priori* anticipations of the mind, that the land would tire of one kind of grain. There would exist nothing apparent to justify such a conclusion; it must, therefore, have resulted from experience. *Virgil* has said "*mutatis requiescent fatibus arva*" and in another passage, what is nearly to the same effect,

The segetes, illic veniunt felicius ovæ:
Arboriæ fetus alibi, atque injussa vrescunt
Gramina."

It is probable that this change of cropping is rendered necessary from the exhaustion of those specific, saline substances which existed in the soil in sufficient quantity for one crop, but not for more. Can any other reason be assigned, why a piece of land which this year has grown a particular grain, should not be able to grow the same grain next year, and so on, without any alteration in the grain, or deficiency in the crop, more than may be occasioned by the variation of seasons? None. If a piece of land which has just produced a crop of wheat, could have restored to it all that the wheat crop has abstracted from it, there can be no doubt, but that the land would grow as good a crop of wheat the next season, as it did the former.—Why should it not? Its condition and capacities, are the same. To ascribe choice and discrimination to land, is to trifle with our understandings. Why then has experience shown the superiority of changing the kind of grain, over that of continuing to crop the same land with the same kind.

To this it may be answered, that whilst the business of Agriculture was conducted independently of principle, there was no other, and

certainly no better guide, than experience.—Hence the failure of crops, when repeated too often in succession, suggested the expediency of change. And a change being found to succeed, it became a maxim to guide the operation of the Farmer, who has continued to respect it to the present hour. Let us consider the cause of failure. Suppose wheat had been the grain the farmer had wished to perpetuate on a piece of land, we know, from what has already been advanced, that wheat requires a large quantity of animal manure, and a certain quantity of phosphate of lime, but, it is probable, that after one crop had been raised on such land, almost all the animal manure, and phosphate of lime would be consumed, so that the next crop would have no source, or not a sufficient one, for the production of its gluten; and, consequently, for one third of the crop, there would be no provision. Can there now remain any doubt of the cause that prevents a repetition of the same grain? Had the elements of gluten, and the phosphate of lime, taken up by the former crop, been restored to the land, there is no question but that the wheat crop would have succeeded the second year, as well as the first.—This would also be the case with barley, clover, san-foin, &c. No one will dare to dispute the variety of these conclusions, who has seen the effects of gypsum at Holkham; and what is true of one, is by a parity of reasoning true of all.

As I have once been misunderstood to imply, that this capability of perpetuating one crop, must necessarily lead to the exclusive growth of one kind of grain, I shall here observe, that such a conclusion by no means follows the reasonings here employed. One piece of land might, and probably with great convenience, if not advantage, would be confined to one crop; but such a crop need not monopolize all the land. It is true that a perfect acquaintance with these specific substances, might enable the farmer to raise more frequently particular crops than hitherto he has been accustomed to do.

CHAP. V.

On Lime—Soot—Carbonic acid gas—Light, &c.

There are some substances employed as manure, or that are spontaneously provided by nature, which contribute to the operations of vegetation, by preparing other substances for that purpose, or decomposing them in such a manner, as to render them efficient. This is the case with lime, soot, carbonic acid gas and light, no one of which it is probable, could furnish any nutriment to plants, until it has undergone some change, or entered into some previous combination. And of these there are two, namely, lime, and light, which appear confined in their operation to that of rendering other substances, otherwise inert, useful as nutriment.

Lime has frequently been commended as manure, so restorative of productiveness, that, in some situations, it is supposed to excel every other; but it may safely be affirmed, that it never acted as a manure. It forms no part of any plant yet discovered. Its beneficial effects are entirely referable to its action upon the insoluble,

animal and vegetable matters, already contained in soils, and which are perfectly useless, before they are brought into a soluble condition. Such a change is produced by lime. *Bullion la Grange* says, that gelatine oxygenized becomes insoluble, and vegetable extractive we know becomes so from the same cause; now lime has the property of attracting oxygen, and consequently, of restoring the property of solubility to those substances which have been deprived of it, from a combination with oxygen. Hence the use of lime on peat lands, and on all soils containing an excess of vegetable insoluble matter.

These uses of lime will clearly explain the difference between it and chalk. Chalk having no power of acting upon animal or vegetable substances, and being no other way serviceable to land than as it alters its texture.

When lime is employed upon land where there is present any quantity of animal matter, it occasions the evolution of a quantity of ammonia, which may, perhaps, be imbibed by the leaves of plants, and afterwards undergo some change so as to form gluten, &c. &c.

The agency of light in the phenomena of nature, is perhaps, as great, and almost as general as that of heat. In vegetation it promotes the growth of plants by a peculiar process; it gives them colour, aroma, inflammability &c. But it is the first of these considerations only that I intend to notice in this place.

The atmospheric air besides its oxygen and nitrogen, contains also a quantity of carbonic acid gas, which though inconsiderable in small volumes of air, is still an object of great importance, when the immensity, and perpetual motion of the air are regarded. That large quantities may be abstracted from it, is sufficiently proved in the neutralization of caustic alkalis, and alkaline earths.

The leaves of plants are furnished with means of imbibing carbonic acid gas, and, probably, other kinds of air also. When the former is presented to them whilst they are exposed to the action of the direct rays of the sun, it is decomposed, the carbon is retained, and the oxygen, its other constituent is set free.

In this manner almost all the nourishment which forests derive for their support, is obtained. Hence the slowness with which woody fibre is formed in oak, and other trees. Why should they be left unprovided with manure, and yet be expected to flourish as well as annual crops of grain, which demand so much of the care and assistance of the Agriculturist? Nothing can be more unreasonable, than to put a young plant into the ground, and to expect it shall grow without nourishment. But unreasonable as it is, the fact proves that growth does take place, but it is so tardy, that our surprise is increased, that no means have been employed to accelerate it. What man has neglected to do, nature has to a certain degree performed.—The young plant puts forth its leaves, and imbibes carbonic acid gas from the air. That substance furnishes it with carbon. The leaves formed in spring and summer, are shed in autumn, and manure the soil for a succeeding spring, and thus, after a succession of seasons, there has been decomposed enough carbonic

acid gas to produce a large oak, out of a small sapling. If instead of trusting to the bounty of the air, manure had been applied to the soil every year, where the oak grew, there can be no doubt, but that the same tree would have been formed in one third part of the former time.—To employ such means to promote the growth of useful forest trees might be an object of national importance.

Soot, the next substance mentioned, is composed of carbon, muriate of ammonia, extractive, iron, & carbonate of lime. Several parcels which I have examined have contained more than one third of carbonate lime, a substance which, as it is not volatile, must have been mechanically carried up the chimney with the smoke.

As a manure, the extractive is the only part which it contains that is immediately useful, there being no substances in soils capable of liberating the ammonia. The addition of caustic lime accomplishes such an effect with great rapidity, and when used with that intention, which it sometimes may with advantage, it should be by a top dressing, care being taken to do it when the land is wet, or there is probability of rain.

The manner in which the carbon acts is not yet understood. Its insolubility renders it useless before it enters into some new combination. According to the opinions of chemists, carbon will not combine with oxygen at a temperature lower than 800 Fahrenheit, but, from several experiments that I have made, I am induced to believe, that carbon combines with oxygen at perhaps every temperature, when in a state of extremely minute division. The rapidity of combination appears to observe a very irregular law, somewhat analogous to the evaporating power of water, at temperatures near the boiling point. If this property do really belong to carbon, we have no difficulty in understanding the manner in which it acts as a manure, but if we deny the existence of this property, I cannot see in what way it can be serviceable.

I have now completed the object which I had in view in this brief publication. I have endeavoured to introduce a more precise mode of considering the nature of soils and operations of manures; the specific properties of vegetables, and the necessity of attending to such properties in practical husbandry. Should this imperfect essay induce some other person to prosecute the subject further; should it illustrate any fact now obscure, or in any way whatever benefit the interests of the country in general, or the agriculturist in particular, I shall feel myself fully rewarded for the occasional hours that I have devoted to this most important subject.

LAW OF TRESPASS.

Copy of a letter addressed by John Laws, Esq. to Mr. Young, Esq., and by him laid before the Agricultural Society of Prince George's County.

[COMMUNICATED FOR THE AMERICAN FARMER.]

DEAR SIR—When you lately consulted me on the subject of the trespass that had been committed by two of your neighbors on your land, you suggested in the course of our conversation the advantages that would result from a summary exposition of the law, on the nature and extent of the redress which has been provided for landholders, whose lands have been tres-

passed on by cattle, and whose fences have been pulled down and taken away with a criminal intent. In pursuance of this suggestion, I have devoted few leisure moments in collecting the provisions of our laws on these subjects, and I submit to you the result of my research and inquiry, with the hope that it may in some, though in a very limited degree realize your wishes.

Nothing can be more obvious, since the right of private property has been established for the promotion of industry by enabling every individual to reap the rewards of his labor, than that this right should as far as possible be protected from every encroachment by clear and effectual regulations. It is equally obvious that nothing would be more conducive to agriculture, than just enactments by legislative authority, founded on the maxim, *Sic utere tuo ut alienum non laedas*.^{*} But, from an examination of the principles of law relating to the subject of our conversation, you will find how indefinite and unsatisfactory are its provisions on many points; and it will probably strike you, how much less vexatious it is for a landholder in most instances to let trespassers pass unpunished, than to seek redress in the modes that have been provided for him.

It is true that our law considers every entry upon another's lands, (unless by the owner's leave, or in some very particular cases) as an injury or wrong; for satisfaction of which, an action of trespass will lie. But the quantum of that satisfaction is to be determined by considering how far the offence was wilful or inadvertent, and by estimating the value of the actual damage sustained: for every man's land is in the eye of the law enclosed, and set apart from his neighbor's, and that either by a visible and material fence, as one field is divided from another by a hedge—or by an ideal invisible boundary existing only in the contemplation of law, as when one man's land adjoins to another in the same field. And every such entry or breach of a man's close, carries along with it some damage or other, for if no other special loss can be assigned, yet still the words of the writ itself specify one general damage, viz: the treading down and abusing his herbage. Such is the law as laid down by Blackstone, and it has been recognized to be law in this state. It was decided in the last term of Prince George's County Court, in the case of *Prather vs. Baldwin*, where the alleged trespass was committed after warning against it from the plaintiff on a field which had for years been unenclosed; and a verdict under the direction of the court, was given for the plaintiff.

But the action of trespass is a very insufficient remedy, where the trespasser is actuated by a criminal intent, or where his poverty is such that a judgment against him would be of no value. On the other hand every plaintiff in bringing his action subjects himself in the progress of it to many inconveniences, and to the probability of loss by his liability to pay costs, and fees in the first instance, and the possible insolvency of the defendant at last; considerations which frequently ensure impunity to the trespasser, and harden him to the repetition of similar offences.

There is no reason why several species of trespass should not be regarded in Maryland as criminal offences, punishable by indictment. It is laid down in the English law books, that the throwing down of enclosures is an offence punishable by ancient laws and statutes—that throwing down enclosures in the night shall be punished with treble damages, and that taking down gates, poles, posts, stiles or hedge-row, or destroying them is also severely punishable, not only in the King's Court, but in the court baron. In Maryland however we have fortunately no courts baron, one of the aristocratical relics of the feudal system—and as to the jurisdiction of the courts over those offences—it has never been transferred to our Maryland courts, because it appears to be founded on particular statutes relating to the enclosing of commons and waste lands, which have been reported by Judge Kilty, "not to be applicable to the local and other circumstances of the people of Maryland."—I am

therefore of opinion on one of the points which you suggested for consideration, that the throwing down of enclosures, whatever might be the motive of the trespasser, would be regarded in our courts as a civil injury not punishable by indictment.

And here I will advert to a rule in criminal law, which though in force at this day seems to be established, on no just principles, viz: that larceny can not be committed of chattels real, or such chattels as are annexed to the freehold, unless in cases provided for by statute, for at common law it is merely a trespass and not a felony to take such things. Accordingly no larceny can be committed of trees, grass, hedges, stones, fence rails or the like.—But when once they are severed from the freehold either by the owner or the thief himself, if there be an interval between his severing and taking them away, (so that the severing and taking cannot be considered as one continued act) it would then be felony to take them. Thus of wood, cut, grass in cocks, stones dug out of a quarry, larceny may be committed. By this singular distinction the greater offence, as for instance pulling down and continuously taking away fence rails, is only a civil injury—while the less offence of taking away a fence rail, not attached to the fence, but lying on the ground is punishable by indictment as a larceny.

The evils resulting from this general rule, the application of which has produced the acquittal of many a culprit, have in a great measure been remedied in England by several statutory exceptions, as for instance by making it felony to pluck up, destroy, take or carry away any roots, shrubs or plants out of nurseries, gardens or other cultivated grounds—to cut down bark, or destroy timber trees; to steal lead, iron bars and other metals from buildings, &c. But these statutes are not in force in Maryland, and I am not aware that any similar acts have been passed by the legislature, to limit the generality of the rule. It remains for their wisdom to determine whether some provisions ought not to be enacted on these subjects for the protection of agriculture within this state, and the necessity of some legislative provision seems to be apparent when it is considered that those who commit such trespasses with the intent to steal, or to support themselves or their cattle at their neighbor's expense, may in their poverty exclaim with the poet:

. Wealthy men
Who have estates to lose, whose conscious thoughts
Are full of inward guilt, may shake with dread
To have their actions sifted, or appear
Before the judge: but we that have no fleece
On which the talons of the gripping law
Can sure take hold, may safely smile on all
That can be urged against us.

If against trespassers of this description judgment and damages are rendered in a suit at law, they have a ready mode of relief by taking the benefit of the insolvent law; and if they afterwards retire into another state, the inconvenience of further prosecution will almost always protect their future acquisitions of property. Is it not therefore necessary that all trespasses with intent to steal, or for the sake of lucre or profit, should be rendered criminal offences punishable with fine, and in imprisonment till the fine is paid?

Besides the action of trespass, the law has provided another redress to the party injured by authorizing him to distrain cattle, or other things found on his land encumbering it, or otherwise doing damage there; which is called a distress of things damage feasant. But a very slight reflection on the provisions of the law on this head, will show how insufficient they are as means of redress in the abstract, and how unsatisfactory in application and practice. Any damage done to the pasture or herbage of the land, or by destroying plants or trees, will authorise a distress; or where any thing is improperly placed on another's soil, it is not necessary that it should actually do an injury to the soil or its produce—it is enough if it unlawfully encumbers it. So if a man put cattle into my pasture for a week, and I give him notice that I will keep them no longer, and he will

not fetch them away, I may then distrain them as damage feasant.

Nothing which is capable of being damage feasant, can be exempted from distress, unless it be in immediate use, as a horse on which a man is riding, or a net in his hand; for to distrain them, might probably lead to a breach of the peace. But the distress must be confined to the very thing which is the damage feasant, for one thing cannot be distrained for the damage done by another. If ten head of cattle be damage feasant, the owner of the soil cannot distrain one of them for the damage done by all, but only the damage done by itself. Also, cattle can only be distrained for the damage done at one time on the land: so that if beasts trespass on the land on one day, and then go off before they can be distrained, and trespass on it the next day, and then are taken, they cannot be distrained for the damage done on both days, but only for that done on the latter. Further, a distress of things damage feasant, must be made whilst they are doing damage. The law therefore allows the distress to be made at night, and in short whenever they are so found on the land; for otherwise the cattle might escape. Nor does it matter to whom they belong—for they may be distrained damage feasant, although they may have come upon the land without the owner's knowledge or consent, or by default of another—provided that it be not by default of the owner of the soil, or of the tenant, as by not properly repairing the fences of the land, which by contract, prescription or law, he was bound to keep in repair; for in that case the distrainer cannot take advantage of his own wrong. But if the owner of the cattle suffer them to remain on the land after notice given him to remove them, they may be distrained for any damage done after such notice.

With respect to the disposal of the cattle, after they have been distrained damage feasant, the law has provided that they may be detained in a public or private pound till compensation be made for the distress. As to public pounds I know of none in Maryland, though such pounds are established in almost every parish in England; but Chancellor Kilty, in a note on the *St. of 1 and 2 Phil. and M. ch. 12*, says, "there is no alteration in the law, so as to prevent distresses from being impounded, yet it seldom if ever happens that they are so." Cattle damage feasant may therefore still be impounded in private pounds, which are either overt or covert—the former is a pound of which the sides are partly open, the latter is a complete enclosure as a barn or a stable. Cattle ought to be put into a pound overt, so that the owner may see and have access to them for the purpose of feeding and tending them, which it is his duty to do. But if put into a pound covert, sustenance must be furnished them by the distrainer, who is not entitled to any satisfaction for the expense, and if they die for want of proper food and care, he must answer for them. In impounding cattle, no attempt must be made to confine them therein by such means as may injure them, for if a horse leaps over a pound and he is afterwards tied within it by a rope, with which he struggles himself, the distrainer is liable to make satisfaction.

When cattle are impounded in a private pound, notice of the place of such impounding must be given to the owner of them by the distrainer. But as the distrainer only holds the custody of the thing distrained, as a pledge for the satisfaction of the injury sustained, he cannot use or work it, although the owner may make what profit of it he can, while it remains in the pound. Every use of the thing distrained is considered as an abuse of it, so that such use cannot be justified, even by its being beneficial to the distress itself, and the distrainer is liable to an action for the recovery of damages therefor, under the statute of 11 Geo. 2, ch. 19, sec. 19, which is applicable to and in force in Maryland. As the cattle so distrained cannot be sold, or in any manner converted to the use of the distrainer, under any circumstances, but must remain in the pound until relieved by the owner, or satisfaction made for the damage done, it is apparent that this mode of redress must prove in many instances entirely nugatory and inefficient.

^{*} So to use your own property, as not to injure another's.

On this head I shall only add to the exposition already made, that if a man come to distress cattle damage feasant, and before the distress, a tender be made of sufficient amends for the damage, with costs, if any of the distress, the owner may immediately rescue his property from the hands of the distrainer—so also if a sufficient satisfaction is tendered for the damage done, together with the charges of the distress, after the distress, and before the impounding. But after the distress is taken and impounded, though without just cause, the owner cannot break the pound and take away the distress: if he does, the party distraining may have his action and take the distress wherever he may find it.

The preceding view of the mode of redress granted to landholders, is too much in detail to furnish you with any entertainment, but I was reduced to the alternative of remaining silent, or of making such an exposition as would prevent misconception, and at the same time enable yourself and your friends to determine whether the provisions of our law were adequate or not, for the relief of the landed interest against trespassers. They appear to me, (if I may be permitted to express an opinion) to furnish a very inefficient remedy. In the first place it will be perceived, that though a distress damage feasant puts the owner of the cattle to inconvenience, and is therefore a punishment to him, yet if he continues obstinate and will make no satisfaction or payment, it is no remedy at all to the distrainer. Why should not the distrainer in this as a distress for rent, and other cases of distress, be permitted to sell the property distrained, at a tender a certain period of notice to the owner, unless amends are made for the injury sustained? 2dly. There does not appear to be any provision in the law, how the amount of injury done by cattle damage feasant shall be ascertained, so as to authorise a delivery of the distress after tender being made of adequate satisfaction, or a rescue before the cattle is impounded, and a replevin thereafter. 3dly. Why should not a landholder be permitted (which is not now the case) to distress one out of many head of cattle, for the damage done by the whole herd, and also to distress for damage done at several times by the same cattle as well as at the particular time, only where it is distrained? 4thly. In case of a rescue of cattle distressed damage feasant and impounded, or of a rescue before impounding, without lawful cause, should not the rescuer be subject to an indictment, as well as to an action for an unlawful rescue?

The only acts of the Legislature of Maryland, which relate to the subject of this letter, are the act of April, 1715, ch. 31, and the supplementary act of 1769, ch. 8. The first section of the act of 1715, provides that all enclosures by fences or otherwise within the intention of that act, shall be five feet high. This section does not in any manner affect the law as before laid down on the subject of trespasses, nor is it to be construed to imply that unless a landholder has fences of that height he is incapable of supporting an action for trespasses committed on him by his neighbor's cattle. The height of five feet for a fence is prescribed only for the purposes and objects specified in that act. The same section provides that between the 1st May and 10th November yearly, and every year, all owners of any horse or horses, mares, colts and geldings, shall be obliged to keep up such horses, &c. within good and sufficient enclosures; and it is enacted in the next section, that if the owner of any such horses, &c. shall omit to keep them up, and such horses, &c. shall break into the enclosure of any inhabitant within the period above limited, and two warnings are given by the party grieved to the owner, who neglects to keep them up, it shall be lawful for the party grieved to shoot, kill or destroy any such horse, &c. provided it be done on his enclosed grounds. The 4th sec. of this act, as well as the act of 1769, relates to the manner of taking up strays, the owners of which are unknown. The 12th sec. of the first act provides that all stoned horses shall be kept within good sufficient enclosures, and that if any such (that have been taken and broke fit for use) shall happen to be found at large, it shall be lawful to take up and impound the same in some open

place, and there to detain him until the owner shall satisfy the person so impounding, the sum of five shillings or 30 lbs. of tobacco. By the 15th section any stoned horse above 18 months old, unbroke, which shall be found loose in the woods, may be shot, and by the 14th section it is not lawful for any person not having lands of his own, nor renting a plantation, to keep breeding mares in the woods, under the penalty of 500 lbs. of tobacco. The three last sections were intended to restrain the increase of useless horses the multitude of which had become burdensome and pernicious to the state, at its early settlement. The other sections afford little protection against trespasses. It is little satisfaction and is no compensation for an injury, to have the privilege of shooting your neighbor's horse, and the legal exercise of that privilege, injures the community by diminishing the capital employed in agriculture. It may also be remarked with respect to the efficacy of the act of 1715, that it is as necessary that hogs and neat cattle should be kept up within good and sufficient enclosures during certain periods of the year, as horses.

Immediately connected with your enquiry, is an act of assembly passed in the year 1813, to prevent the unlawful cutting and carrying away of wood and timber. It gives jurisdiction to a justice of the peace, where the damage does not exceed fifty dollars to try and determine the matter in controversy, between the owner of the land and the trespasser, and if he is satisfied that the wood cut, destroyed or carried away, belonged to the plaintiff, to give judgment in his favor, against such trespasser, for such damages, as may be assessed by any two or three judicious freeholders, to be appointed by the justice trying the case. But if the justice should be satisfied that the plaintiff is not the rightful owner of the wood or timber, where he has been trespassed on, judgment must be given in favor of the defendant for costs, and in case the alleged trespasser shall claim title to the land on which timber or wood was growing or lying, or allege that he acted under any person claiming title to such land, and verify such claim or justification by his oath or affirmation, the justice shall take no further cognizance of the complaint. The summary nature of the redress prescribed by this act, renders it salutary in its operations. It might however, be advantageously extended to other descriptions of trespass, and its efficacy would be enhanced by authorizing the justice of the peace on full proof of the trespass, to give judgment for double damages against the defendant.

From the hasty view I thus have taken of the law on the points of your inquiry, I think it must be apparent that sufficient protection has not been given to the interest of the landholder in this state; that much might be done by judicious legislation, which while it secured to the cultivator the enjoyment of the expected and deserved harvest, would only punish the wifol and flagitious trespasser without oppressing any class of the community. The deficiency of timber, and the expense and difficulty of making and repairing fences, are now so sensibly felt throughout the country, that the passage of some more operative law to defend them, seems to be generally admitted. It is equally necessary to restrain more effectually trespasses by cattle; nor is it any just objection to this position to urge that the laws which we have derived from England have been hitherto found sufficient for that purpose by our ancestors. It should be recollected that there are many means in England to punish a troublesome and poor trespasser besides an action at law, although that of itself from the enormity of the expenses of litigation in that country is enough to frighten those who with some property depend principally on their labour for support. But the liberality of our free constitutions do not permit a virtual denial of justice by exposing a litigant to ruin, nor will they clothe our magistrates with the unlimited discretion allowed by the British vagrant and poor laws, nor suffer a press-gang to sweep out of our community at the beck of a lord of the manor, without a trial, any poacher or trespasser, however guilty. Such remedies would be worse than the disease. Every grievance to which the agriculturist is subject, may be cured under our republican

institutions, without infringing the liberty of the citizen. It only requires that due zeal and reflection should be exercised by the state legislature on this subject. In the course of this communication I have endeavored to point out some of the defects of our laws, and many more will suggest themselves to yourself and others of more practical experience.

Excuse this long letter, and believe me,

Dear Sir, your obedient Servant,

JOHN LAW.

P. S.—At the next meeting of the Agricultural Society, I propose to make a communication on the art of ornamenting country residences with economy, and of laying out grounds surrounding the owner's house, a subject very interesting, but hitherto little attended to in Prince George's county.

For the American Farmer.

CUT WORM.

MR. SKINNER—Having suffered severely in the corn crop, for several years past, and particularly during the last year, by the ravages of the cut worm, I determined to try the effect of a fall-fallow for a crop of corn for the present year, in destroying the worm, it being a pretty generally received opinion, that a fall-fallow by exposing the worm, to the winter's frost, would destroy it. For this purpose, the whole of a field of 110 acres, covered with a heavy clover stubble, was well and deeply ploughed last fall, chiefly with oxen, two yoke to a plough, except about fifteen acres, which for experiment were left unbroken. Ten of the fifteen acres, were listed this spring, at the usual time, with four furrows of a two horse plough, and in horizontal rows of six feet distant, leaving the interval between the lists, called in our agricultural phraseology, the balk, unbroken, and well set with clover, left as food for the worms, and so far, as a protection to the corn. The other five acres, remained undisturbed, and out of cultivation. The whole field thus prepared, with the exception of the above five acres, was planted in corn, about the middle of the last month (April.) The worms commenced their depredations, with the coming up of the corn. A large proportion of the corn in that part of the field, fallowed last fall, has been destroyed by the worm, and the remainder, so crippled, as to render it doubtful, whether it can be depended on for a crop. It has however, been re-planted, with the hoe alone, at the expense of considerable time and labour. The corn in the ten acres of the balk land, together with the clover in the baulks, has been destroyed literally root and branch, and the five acres of clover adjoining has shared the same fate. I have never seen an instance, of so entire and complete a destruction of every species of vegetation, by the worm. The roots of the clover are eaten into shreds, and with those of the corn &c. all other vegetation, completely annihilated. I have on this day (22d May) re-ploughed, and re-planted the whole piece, with however but little hope, of succeeding in a crop from it, for the worms are still as numerous as ever, with increased powers of doing mischief.

While these ravages have been sustained on a clover fallow, twenty acres of low grounds, i.e. wheat the last year, and planted in corn this spring, have remained perfectly free from the worm. Now it is to solicit information as to this fact, among your numerous correspondents,

that I have troubled you with the foregoing details. If it can be satisfactorily ascertained that corn following wheat, will be exempt from the worm, it is an important fact, and one which should be generally known. An opinion to this effect, I know, pretty generally prevails, but has not been established upon any satisfactory data, so far as comes within my knowledge.—Many no doubt of your numerous readers, and correspondents, have pursued a rotation of crops, which will bring the fact, to a satisfactory test. Heretofore, mine, has been a six year-rotation of crops, in the following order:—corn; wheat; clover; wheat; clover; and clover. Under this system, with the two auxiliaries gypsum and manure, the land has rapidly improved. But for several years past, owing to the depredations of the worm, the labour expended in the corn crop (to say nothing of the risk of a total failure) has been so greatly increased, as to render it out of all proportion to the value of the crop, when made. An abandonment therefore of the corn crop, or a change of system, which will free us from these troublesome attendants of the clover, has become indispensably necessary. I propose to try a change of system and to make corn follow wheat. This will throw the three grain crops together in succession, a course which none but strong lands, will sustain. In the meantime, I should be gratified, to receive, through the medium of your valuable miscellany, any suggestions as to a better system of crops, or further information, as to the facts above mentioned.

Respectfully your most obedient,

DABNEY MINOR.

Orange, May 22. 1821.

MEANS OF KNOWING THE PRECISE MOMENT OF THE EQUINOX.

There are few almanacks that do not notice the equinox, and it is rarely they agree. This sometimes embarrasses those, who for some operation, await this instant to which so many virtues ("tant de vertus") are attributed.

The following are the means founded on experience:

The secret consists in having the ashes of vine branches, and a crystal glass. The glass must be clear, and the ashes well sifted. The glass should be placed on a solid table, or something not liable to be agitated, the windows and doors exactly closed, that the wind may not disturb the operation. These dispositions being made, fill the glass with clear water, and throw in about two spoon fulls of the ashes, which will soon be precipitated to the bottom, and leave the water transparent. You then wait with patience the moment of the equinox.

At the moment the sun ascends to our hemisphere, or descends from it, the ashes will rise from the bottom of the glass, and render the water turbid, as though an invisible hand had shaken it.

This experiment, as curious as easy, offers to philosophers a great subject of meditation, and those of them who may assure themselves of its truth, will, in accounting for it, draw forth principles more luminous and fruitful in useful knowledge, than the analogy of the electrical fire with that of thunder.

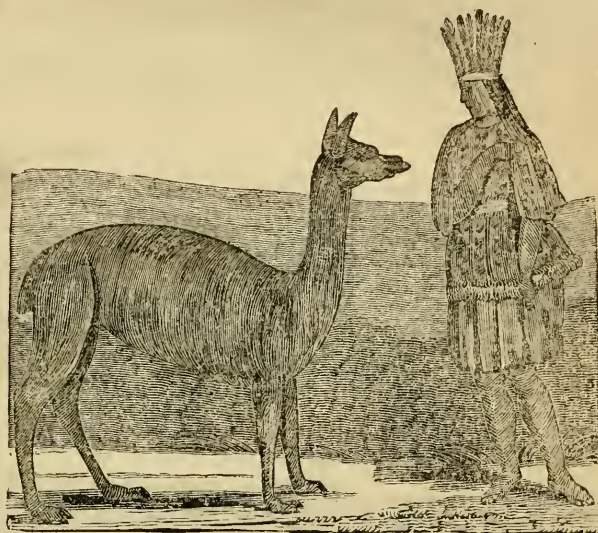
J. S.

THE SHEEP OF PERU

Are exceedingly valuable, and ought to be introduced into the U. STATES OF NORTH AMERICA.

(Continued from page 84, No. 11.)

THE HUANACO.



The Huanaco is rather smaller than the Alpaca, of course less than the Llama—its general stature is about three and a half feet high. That it can be domesticated when taken as a suckling, has been proved in several instances, and that it will intermix with the Alpaca, the Llama, and the common European sheep, has likewise been proved by various experiments.

That the Huanaco as well as the Vicuña have generally remained in a wild state, has arisen from the inattention of the Spanish government, and from the Indians having a superabundance of the Alpaca and Llama for all domestic purposes.

At the time of the expulsion of the Jesuits from South America, they had upwards of a thousand of Huanacos and Vicuñas in a tame state in their inclosures—they had crossed the breed with the other species of sheep, and saw

the importance of the scheme both for the country, as well as Europe, but after the departure of the Jesuits, the plan of domesticating the two wild species was abandoned, and it has not since been renewed.

It has been found that the Huanaco, though of a deep bay colour, crossing with a white female Llama, produces an off-spring nearly of the hue of the mother—and in the second generation, besides being perfectly white, the wool has been considerably improved in fineness.

The Huanaco is the swiftest animal of Peru, and is more courageous than either of the other species of sheep; and although, as regards his wool, he is of less value than the others, yet it is probable that great advantages may be derived by crossing with this breed, and therefore it is desirable to introduce this species as well as the others, into the U. States.

(TO BE CONTINUED.)

For the American Farmer.

MELONS,

How to protect them from the depredations of Bugs.

MR. SKINNER—

You requested your subscribers to send you some cantelope seed, and although I have neglected a prompt compliance, I hope those which I now send to you, will be in good time. The seed marked No. 1, were taken from two of the finest melons which I tasted last summer. I dried them myself, and have kept them distinct from any other seed, in order to ascertain whether the seeds of a single cantelope will not produce a variety of melons. I have sometimes

had reason to believe it would, but have never ascertained it. The note I find on the paper enclosing the seed, is, *these are seeds from two large sized cantelopes, exactly similar, rough sage coloured skin and flesh, almost white at the inside.* I wish you to plant them separate from any others, to ascertain whether they will produce fruit answering the above description. No. 2, is mixed seed, which you may find very good. I generally have cantelopes very fine, and in great abundance. I have been very much injured by a small striped yellow bug, and have unsuccessfully applied lime, suet, brimstone, plaster, and even Scotch snuff, to destroy them. If the upper surface of the leaf was covered, they would depredate on the under part, or the stem, and one season when they ap-

prepared late, and destroyed plants which I thought were out of darg r-1 almost failed in my crop, it was too late to replant, but I have adopted a method which completely succeeds. I have generally plenty of seed, and after I begin to plant, I have fresh seed stuck in the hills every week, until the beginning of June, paying no respect to the state of the plants on the hills. When the bugs make their appearance, I make a little boy examine the hills every morning, and if they are numerous, several times through the day, and kill all he can. In the morning, if cool, they are easily caught, but in the heat of the day, they are very lively. They are much disposed to congregate, and if not checked on their first appearance, they increase very rapidly; it is frequently necessary to destroy all the plants on a hill, when they are very numerous there, and I do this the more willingly, knowing there are seeds in the ground to succeed them. I have recommended this practice to others, who have also succeeded. If there are two many plants in the hills when the insect is destroyed, they can be thinned to any number which may be thought sufficient.

A.

ON PEA HAY.

By Thomas Pinckney, Junior, Esq.

ALBANY, Sept. 9, 1816.

DEAR SIR—A committee of this Society was appointed during the last year, and charged to discover and recommend some mode of maintaining farm stock, besides the incessant application to the corn crib. This committee among other substitutes and aid, recommended pea hay, as affording a rich food for horses and cattle, and whose culture at the same time, was easy, and its growth beneficial to the soil. Believing the recommendation to be judicious, I have adopted it, and now take the liberty of submitting to the Society the result of my first crop of pea hay.

The last of April I ploughed up an old field which had been in corn the preceding year, a stiff red clay much worn, and of which about two acres had been manured for corn, the preceding year. Across this ploughing I drilled in peas with a shovel plough, three feet apart, on the 6th and 7th of May I ploughed them twice; the first time between the 1st and 3d of June; the second time between the 20th and 24th June; hoed them once, the end of June. This is all the culture they received. On the 26th of Aug I began to cut the pea vines, and finished the 27th, cutting half the field, which consists of 14 acres. In most places the dry weather had injured them, and they did not look as flourishing as I expected. Four days after cutting them, I turned them putting two rows into one, and on the six-th day I turned them again. On the morning of the 8th day, I began to haul them in, and finished the next day; and they have produced me twenty-five heavy wagon loads of rich, good fodder. As this produce may be best understood by comparison I will state that I had a field of corn of twenty-two acres adjoining of new land, only the second crop, which had been planted very early, and had not suffered by the drought; the fodder was very good, and was carefully saved, and produced me sixteen wagon loads.

I am extremely sorry I have not the means of weighing a load of the pea fodder, but I should think a wagon load of it must weigh nearly twice as much as a load of corn blades, and the difference in quality is very great. Twenty-five loads from seven acres and a half in one case, and sixteen loads from twenty-two acres in the other. Less than two-thirds of a load of blades to the acre, and more than three loads of pea fodder to the acre.

If it be true, as has been stated to me, from the best authority, that a peck basket of these vines, chopped in a common cutting box, twice a day, is good and sufficient food for a horse, with a small portion of blades, when not at hard work; I should not hesitate to believe this produce to be superior to that of a regular corn crop, on such land, which could not be expected to produce much more than ten bushels to the acre. Indeed I know positively from

my memorandum book, that its produce last year, under favorable circumstances, was but ten bushels and a half. At this rate my seven acres and a half would produce me but seventy eight bushels of corn, and about five wagon loads of fodder. Let us suppose a heavy load of this fodder to be equal to seven bushels of corn, (and I would not exchange it for ten,) these seven acres and a half have produced me that which is equal to 175 bushels of corn, in feeding cattle and horses; and I know it would puzzle the best farmer to produce half this quantity from these seven acres and a half, in their present state. If to these advantages we add that peas are an ameliorating crop, drawing very little from the earth, and slading and protecting it from the powerful influence of the sun, that their leaves are mostly left on the soil, to enrich it, and that they are a fine preparatory crop for wheat, as they may be got off the land exactly in time to prepare it for seeding, I think that we shall agree that the committee have been very judicious in recommending the pea culture; and I hope my success will induce some of my brother farmers, who have fields requiring rest or shift, to substitute a crop of peas for the common mode of sowing oats or wheat which are exhausting crops.

The Society will readily perceive the error I committed in this crop: the peas were sown, as I have stated, on the 6th and 7th days of May, when they ought to have been sown as early as the frost would permit. This circumstance and the late dry weather evidently injured them very much.

I am, dear sir, very respectfully,

Your obedient humble servant,

THOMAS PINCKNEY, Jr.

J. T. LEWIS, Esq. Corres. Sec'y. of the Penitentiary Farmer's Society, South Carolina.

BENE PLANT.

Directions for Cultivating it, with remarks on its great produce of Seed, yielding a good SWEET-OIL abundantly.

ANNAPOLIS, May 26, 1821.

SIR—As General Foreman has attempted to introduce the Bene Plant into this state, I send you below a copy of a letter from Mr. John Morel to Mr. Charles Thompson, secretary of the Philosophical Society, at Philadelphia, dated Savannah, May 5, 1769. A republication of which at this time may be useful.

Yours &c.

JAMES BOYLE.

J. S. SKINNER, Esq.

MR. JOHN MOREL TO MR. CHARLES THOMPSON.

SIR—I send you a small keg of bene, or bene-seed, which you will please present to your society for their inspection. This seed makes oil equal in quality to Florence, and some say preferable. Some say one hundred weight of seed will produce ninety pounds of oil, others say less; be that as it will, it certainly makes very fine oil, and produces amazingly. If it is put to the trial, care should be taken to have the press well cleaned, so as to leave no tincture from what may have been already pressed; in my opinion, this is an article of consequence, and I believe it will grow in Philadelphia. The way to sow it is in holes about three feet asunder, dropping in each hole about ten grains; when it comes up, thin it to three or four of the most promising;—the seeds will appear in pods about September, and should when full grown, and before dry, be gathered in. The method is as follows: As soon as you perceive about three fourths, or four fifths, of the pods rise on the stalk, and the lower pods begin to loose their seeds, it is then time to take it in; for after that, as much will fall out of the bottom pods each day as can ripen at the top. You take a sharp hatchet-bill, or some such weapon, and with it cut off the stock twelve or eighteen inches below any of the seed, holding the stock with the left hand, and when cut a second person receives it, keeping it upright, till he has his load; for if you turn it downwards, the ripe seed will fall out of the pods. You may immediately carry it into a

barn, and set it upright on a close floor, till you perceive all the pods are fully dry and open; (you may, if you choose, leave it in the field, which must be the case, if a large quantity is planted,) then thresh it, and run it through a proper sieve, and it is fit for use.

We are quite unacquainted with the method of expressing the oil, but we believe if it is designed for table use, nothing should be done to the seed, as it might give it an ill-taste. The lighter and drier the soil is, in which it is planted, the better.

THE FARMER.

BALTIMORE, FRIDAY, JUNE 15, 1821.

We shall, in our next Number, have the pleasure to give a detailed official account of the Cattle Show and Fair held by the Maryland Agricultural Society, on the 7th and 8th days of June; until when we are compelled to delay it by the unavoidable absence of the secretary, John E. Howard, Jr. Esq. from this city.

PRICES CURRENT.

Flour from the wagons, \$4 1/2—Whiskey from do. 27 cents, including barrel—Hay, per ton, \$18 a 20—Saw, do. 7 a \$8—Wheat, White, 83 cents—Red, do. 89—Corn, White, 51 a 52—Yellow, 32 a 34—Oats, 23 a 24—Rye, 40—Cod fish, per quintal, whole sale, \$3, retail do. \$4—New England Beans per bushel, \$1 1/2—ditto Peas, 75 cents—Plaster in stone \$6 per ton—do, ground, \$1 55 per barrel, 63 cts. per bushel, \$8 per ton—New-Orleans sugar, \$9 to 12 \$50—Muscovado, do. \$9 a 12—American White Lead, \$12 50—Ground do. 13 a 14—Lined Oil, 75 cents—Fathoms, 40 a 45 cents—Potatoes, per bushel, 63 a 75 cents—Shad, new, \$6—Herrings, \$2 a \$2 25, declining—Pine Salt, 5 cents per bushel—Ground Alum do 55 a 60—St Utes. 60—Indigo, 50 a 55—Turks Island, 75—Live Cattle, \$5 a 5 50—Beef, 8 to 10 cents—Hams, 10 a 12 cents—Viddlings, 12 cents—Butter, 25 cents—Peas 50 cents per bushel—Strawberries, per quart, 8 cents—Curries 10 to 12 cents—Eggs, 104 cents—Cheese 8 a 10 cents per pound—Tar \$1 30—Turpentine, 1 1/2 a 2—Pitch 2—Rosin, common, \$1 1/2, bright \$2. \$3 per barrel—Varnish, 25 cents—Spirits Turpentine, 32 cents per gallon—Cotton, (good Upland) 14 a 15 cents; very dull—Rice 3 a 3 1/2 cents—Shit and Flooring Plank, \$5 a 27—shingles, best \$7 a \$7 1/2, common, \$3 a 4 1/2 per M.

Maryland Tobacco—Lower counties, common, from 3 dollars, 50 cents to 6 dollars, 50 cents, large sales; fine, no sales—Virginia Tobacco no sales.

STRAW CUTTER. &c.

The subscriber has just completed and has for sale, a quantity of

Hyde's Straw Cutting Machines.

They are made of the best materials, and combine simplicity, economy, durability, and labour saving; they can be applied to horse, steam or water power; also, to cut corn stalks, hay, clover, &c. from half an inch to two inches; the principal knife is permanent; the axle or cylinder contains three pressures, which act as shears; it feeds itself by rollers, and works by spur wheels; every revolution of the balance wheel cuts three times. He challenges any state or individual in the union, to come forward and prove their equal.

He has also for sale, a quantity of BOX CURTAINS of sizes, which will make better in a short time. A liberal discount will be allowed to retailers, in town or country. Any commands left at CASEY'S SLED STORE, No. 2, Hanover-street, next door to Barnum's Hotel, at the work shop, opposite, or at Stoll's Livery Stables near the Marsh market, will be attended to.

JOHN GILL.

PRINTED BY JOSEPH ROBINSON.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua in bona norint
Agricolae." VINO.

VOL III

BALTIMORE, FRIDAY, JUNE 22, 1821.

NUM. 13.

AGRICULTURE.

THE CATTLE SHOW & FAIR.

The Cattle Show and Fair advertised by the Maryland Agricultural Society, was held pursuant to notice on the 7th and 8th days of June, at the Maryland Tavern, four miles from the City of Baltimore, on the Frederick-Town turnpike road.

The weather was exceedingly warm, but otherwise propitious. Public expectation had been excited for some time, and many persons sanguinely expected to enjoy the high gratification of viewing a very large collection of fine and valuable animals.

Nor were these persons disappointed in the smallest degree, for the stock was both numerous and valuable. The crowd of spectators was embarrassingly large, and far out ran any calculation on this point. We had the pleasure to recognize many most zealous, enterprising and intelligent Farmers, with some distinguished Breeders and Graziers, from every section of this state, and several from the District of Columbia, and the states of Pennsylvania, Virginia and Delaware.

The animals chiefly arrived the day previous to the Fair, and were safely and judiciously placed in the stables and uncovered pens allotted to them; but the number of animals so far exceeded the expectations of the Committee of Arrangement, that they had to construct many pens for their reception even on the first day of the fair.

The pleasant shade under which the animals were displayed, on the very margin of a copious stream of fine water, contributed in a great degree to allay the heat of the day, and afforded other actual and striking conveniences, which, when properly improved, will ensure to the Society, an highly eligible position for its future exhibitions.

When the Society had pretty generally assembled, the President took the chair, and the various committees were appointed to examine the stock, to award the premiums, and to report thereon. When the members of the Society had paid their respective contributions, which were voluntary and liberal, they proceeded with the committees and spectators, to view the different animals and implements exhibited for their present gratification and future advantage.

The Horses were paraded, in the presence of an immense assemblage, before the committee appointed to examine them.

It was difficult to repress the curiosity of the crowd, so far as to have sufficient room for the movements of all the horses. It was truly an interesting scene to behold fifteen to twenty noble steeds, in repressed exercise, exhibited to thousands of admiring spectators. After

the exhibition of the Horses, the company sat down to a good dinner, prepared for their refreshment, by Mr. Stone—and then repaired to the pens in which the other animals were exhibited, and to the lot in which the implements were displayed, and passed the rest of the day in reviewing more minutely and leisurely the several articles brought for exhibition.

On the 8th day of June, the members of the Society and a very large number of spectators, repaired to the Show and Fair, being still favoured by good weather.

After the reports of the several committees, on the animals exhibited and entered for premiums, had been delivered to the President, the company were assembled on an eminence, and the successful candidates called near to the President to receive the most flattering evidence of the merits of their animals. The delivery of the premiums was prefaced by the following remarks, made by the President in behalf of several of the committees.

"Gentlemen—The Committees have, in common with their fellow members of the Maryland Agricultural Society, been highly gratified in viewing the animals which have been exhibited to the public, and entered for our premiums on the present occasion, for in number they have fully equalled, and in excellence they have greatly surpassed our most sanguine expectations.

In several instances the committees have found it difficult to decide between animals, which in every important point so nearly equalled each other, that each of them, would in their opinion, have been entitled to a premium, if the funds of the Society were adequate to the occasion.

But they proceeded in the performance of the duty that has been assigned them, placing a just reliance upon the liberality of those whose laudable zeal, has led them to become competitors. The committees are persuaded that the owners of stock have been induced to exhibit them, more from their desire to call the public attention by comparison, to the present state of our domestic animals and to point out the advantages and the means of making important, necessary and general improvements, than from the mere desire of obtaining the premiums. And since the chief objects of all seem to be assured by the spirit which has been manifested on the present occasion, the committees confidently hope that whatever unpleasant feelings their decisions may create, will be but momentarily indulged by those, who are at this time unsuccessful competitors more from the paucity of our means, than from any deficiency in their animals."

The President then delivered the premiums, in obedience to the will of the Society, and in

accordance with the following Reports of the several Committees.

ON HORSES.

The undersigned, a committee appointed by the Maryland Agricultural Society, at their June meeting, to view the horses entered as competitors for the Society's premiums, and to award the same, beg leave to report that, they have performed the duty assigned to them, and have decided as follows:—

For the Stallion Columbia, he being the best calculated to improve our stock of COACH HORSES, they award to Thomas Sheppard, of Frederick county, the Silver Pitcher, valued at \$30

For the Stallion Arrow, he being the best calculated for the Saddle and general Farm purposes, they award to Nimrod Owings, of Frederick county, a pair of Silver Goblets, valued at \$20

For the best Brood Mare, they award to Joshua Gist, of Frederick county, the Silver Butter Boat, valued at \$10

The Committee viewed with great interest the Mare exhibited by Mr. Dudderar, of Frederick county, as she had proved to be a most valuable animal, having been the Dam of 12 colts, 11 of which are now living—four of these, fine large horses that drew his wagon to the Show—whilst the mare brought her youngest colt sucking at her side.

The Committee are of opinion that the Stallion "Messenger," offered by W. R. Stewart, is highly worthy of distinction, and they regret that they could not award him a premium, as he was not bred within this state.

The Stallion "Young Tom," offered by D. Williamson and John S. Skinner, of Baltimore county, attracted their particular notice, but not being made to exhibit all of the requisites prescribed, they could not award him one of the premiums.

The Stallion "Young Friendship," owned by Col. Hood, of Anne Arundel county, is esteemed by the Committee, as eminently well calculated to improve our stock of horses for the Saddle; but not possessing all of the requisites exacted by the Committee of Arrangements, they could not award him either of the premiums.

The Committee noticed with great satisfaction, four very beautiful and highly promising Blood Colts—two exhibited by Gen. Charles Ridgely of Hampton,* and the others by Richard Caton, Esq. They were also particularly pleased with the beautiful spotted Colt, exhibited by Mr. Mabury, of Frederick county, which excited the universal admiration of the spectators.

The Full-Bred Virginia Horse Clifton, was likewise shown and greatly admired, but not having been raised in Maryland, he was not a candidate for any premium.

In closing their Report, the Committee congratulate the Society on their prospects of future usefulness, as evinced by the specimens of fine stock exhibited on this occasion.

EDWARD LLOYD,
ROBERT LYON,
FRISBY TILGHMAN, } Committee.

OF ASSES AND MULES.

The Committee appointed to examine the Asses and Mules, presented for the premiums and notice

* One of which out of an Oscar mare, by the celebrated Tuckahoe, three years old, is fifteen hands three inches high.

of the Society, report, that they have found great satisfaction in looking at these animals.

For the best Jack Ass, they award O. H. Stull, of Washington county, the premium of a Silver Can, valued at \$10

For the best Jennett, they award to R. J. Jones, of Queen Anne's county, the premium of a Silver Can, valued at \$10

For the largest Mule of the very excellent pair offered by O. H. Stull, they award the premium of a pair of Goblets, valued at \$20

The Mules respectively offered by Hy. Thompson, Wm. Patterson, R. J. Jones and George Calvert, were all very good, and they richly deserve premiums; but as one alone had been offered by the Society, for this description of stock, more could not therefore be awarded. The Mule offered by Jacob Hollingsworth, was particularly deserving of a premium, being only two years old, 15 hands high, with great bone and muscle.—The team of Mules offered by Geo. Howard, Esq. made truly a fine display of the excellence which may be attained by care in breeding and raising these very serviceable animals.

The uncommonly large and valuable Maltese Jack Sancho, shown by Mr. Skinner, attracted and deserved our particular attention, but being an imported animal, he was not considered a candidate for the premium.

EDWARD LLOYD,
ROBERT LYON, } Committee.
JAMES NABB.

NEAT CATTLE.

The Committee appointed by the Maryland Agricultural Society, to examine and award premiums for the best Neat Cattle, present the following Report.

OF BULLS.

For the best Bull, not less than two years old, they award to John Green, of Baltimore county, the premium of a pair of Silver Goblets, for his very large and fine Bull of the Holland breed.

For the best Bull, under two years old, they award a Silver Can to Major Thomas Emory, of Queen Anne's county, for his Young Bull of the Irish and Holderness Cross.

The Committee noticed and admired a very fine Bull of the Bakewell breed, exhibited by George Calvert, of Prince George's county; and a very fine Bull of the Bakewell and Holland Cross, exhibited by General Charles Ridgely, of Hampton; who also shewed a full bred Alderney Bull Calf, of fine form, stated to be five months and six days old, and to have attained the very extraordinary weight of 672 lbs.—They also noticed with great pleasure, Major Isaac McKim's two year old full bred Alderney Bull Mark Anthony, a descendant of the very valuable stock imported by Mr. Creighton—he is certainly a fine specimen of that valuable breed. They also remarked the very beautiful Holderness Bull Calf Columella, obtained from Massachusetts by John S. Skinner—he is descended from the British Stock, owned by Gorham Parsons, of Brighton, that have been extolled by the Massachusetts Agricultural Society. Columella promises to be a very valuable acquisition to the state.

The Committee were particularly pleased with a fine Bull Calf of Geo. Calvert's, and a young Bull exhibited by Essex Sterrett, a half bred Alderney, of good figure, from a very valuable Dam.

OF COWS.

The Committee were highly gratified by the great number, and very fine appearance and character of the Milch Cows, submitted to their observation; in every respect their highest hopes were realized in this display. Those severally presented by Martin Erieh-lberger, Hy. Thompson, Jos. Patterson, Robt. Smith, and Mr. Whitmore, are considered peculiarly valuable; but they have felt it to be their duty, to award the Silver Tumbler to General Charles Ridgely, of Hampton, for his dun cow, the best out of four very fine ones of the Dutch and Bakewell Cross which he presented to their view.

Several very fine Calves descended from the Devon Cattle, presented by Mr. Coke, of English Norfolk, to Mr. Patterson of Baltimore, from a philanthropic desire to advance the Agricultural interest of America, were exhibited and universally admired. They were eagerly enquired at by every body, and by many from a desire to purchase.—It is a matter of regret that these fine animals cannot be more rapidly diffused through the state; and that some of the Bulls have not been offered to the public use; for the interest which they excited, was truly gratifying to those who knew and appreciated the laudable intentions of the generous donor. Many Calves of improved breeds, and half bred Alderneys and Bake-wells, were shown, and served clearly to establish the great advantages that attend even the first step towards the improvement of this most valuable species of domestic animals.

The Committee admired the heifers of Wm. Gibson—they are truly fine specimens of our best country breed—the half bred Alderney Calf, of Job Smith, from an excellent dam, is a beautiful and uncommonly fine one; but they have awarded the premium of a Silver Cream Pot to Hy. Thompson, for his Cow Calf, being a very beautiful Heifer of the Alderney and Devon Cross.

And under their authority to take into consideration the qualities of stock, offered for discretionary premiums, the Committee further report, that in their opinion the Teeswater Bull Bergami, owned by John S. Skinner, of Baltimore, merits in the highest degree, the notice of the Society; and they particularly recommend him to the Agriculturists of the state of Maryland, as possessing all of the qualities most requisite to improve the stock of Neat-Cattle in this state. Their attention was also particularly attracted by a Teeswater Bull Calf, belonging to Lloyd N. Rogers, and by the form and Beauty of a Teeswater Cow, of Dr. Allen Thomas. They recommend these three animals, as severally worthy of a discretionary premium.

EDWARD LLOYD,
JNO. WOODEN, of Jno. } Committee.
ROGER BROOKE,
JAMES NABB.

OF OXEN.

The Committee regret that there were but two Yoke of Oxen exhibited for the premium, and also that suitable arrangements could not be made, to try these at the plough; however, they were otherwise enabled to decide that the pair exhibited by Jos. Trimble, were entitled to the premium of six table spoons, valued at \$25.

The yoke exhibited by Levi Hartly, were also very fine animals, and had been well broken to labour.

The Committee will not pass by in silence, the uncommonly large steers brought for exhibition by Mr. T. C. Miller, from Adams county, Pennsylvania, measuring in height upwards of six feet.

There was also a very beautiful young Steer, of uncommon great growth, and fine form which had been raised by Mr. Gibson.

ROGER BROOKE,
WM. GIBSON, } Committee.
JNO. YELLOT, Jr.

OF HOGS.

The Committee were much surprized and highly gratified by the excellent display of Hogs, of different and good breeds. OF BOARS—there were some remarkably fine ones exhibited—one by each of the following persons, Jacob Hollingsworth, Roger Brooke, David Frame and Thomas Lewis. The Boar which Mr. Hawkins, of Q. Anne's county, exhibited, was of a breed well calculated to give great weight at an early age; but for the exhibition of the Boar of Colonel Potter, likewise possessing this profitable disposition in a high degree, added to a peculiarly fine form the Committee have thought it their duty to award the premium of a Silver Goblet, valued at \$10.

The Committee observed with great pleasure, the Boar-Pigs exhibited by David Williamson, and think

that they are of a breed well calculated to improve our stock of Hogs—these pigs were however considered by them, as too young to contend for the premium offered for the best Boar.

Several of the SOWS presented to the view of the Committee were certainly very good ones; they particularly noticed those offered by Wm. Gibson, Jacob Hollingsworth and Stephen Griffith, as being severally very good; and likewise some very fine Sow-Pigs offered by Roger Brooke and David Williamson; but the Committee are of the opinion, that John S. Skinner, is entitled to the premium of a Silver Goblet, valued at \$10, for the exhibition of his Breeding Sow, she being a very good one, having farrowed 30 pigs at two litters, and of which she raised 27.

There were two Barrows of enormous weight, offered as a curiosity to the view of the spectators by Mr. Canowles—they were so large and fat, as to be scarcely capable of moving.

GEO. CALVERT,
JAMES STEUART, } Committee.
B. W. HALL.

OF SHEEP.

The Committee appointed to inspect the Sheep exhibited to the Society are of the opinion that, the Merino Rams are not of that superior character, which should alone entitle them to distinction. But out of them, they award under the terms of the Show, the premium of a silver Can, valued at \$10 to R. Brooke, of Montgomery Co. They are also of the opinion that Col. Edward Lloyd is entitled to the premium of the silver Can valued at \$10 for the exhibition of the best six Wethers; which were uncommonly fine: they had been fed during the Winter and early spring; on corn, generally in the ear but sometimes chopped; with clover hay and corn fodder, no turnips, and since upon a good pasture of natural grasses. A very fine Dishley Ram was exhibited by Lloyd N. Rogers, and the committee regret that they could not award him a premium, the Ram not having been raised within the state.

SAMUEL OWINGS
THOMAS EMORY
W. R. STEWART.

RECAPITULATION.—STATED PREMIUMS.

For the best STALLION, for the breed of COACH HORSES, to Thoms Shepherd of Frederick County, a silver Pitcher, valued at \$30
For the best STALLION, for SADDLE and FARMING purposes, to Nimrod Owings, of Frederick County a pair of silver Goblets, valued at \$20
For the best BROOD-MARE, to Joshua Gist of Frederick County, a silver Butter-Boat, valued at \$10
For the best JACK ASS, to Mr. O. H. Stull, of Washington County, a silver Can, valued at \$10
For the best JENNETT, to Mr. Richard J. Jones of Queen Anne's County, a silver Can, valued at \$10
For the best MULE, to Mr. O. H. Stull of Washington County, a pair of silver Goblets, valued at \$20
For the best BULL, to John Green of Baltimore County, a pair of silver Goblets, valued at \$20
For the best BULL CALF, to Thomas Emory of Queen Anne's County, a silver Can, valued at \$10
For the best MILCH Cow, to Gen. Chas. Ridgely of Hampton, a pair of silver Tumblers, valued at \$20
For the best COW-CALF, to Captain Hen-

ry Thompson of Baltimore, a silver Can, valued at	\$10
For the best YOKE of WORKING-OXEN, to Joseph Trimble, six silver Spoons, valued at	\$25
For the best BOAR, to Col. Potter, of Caroline County, a silver Goblet, valued at	\$10
For the best BREEDING-SOW, to John S. Skinner of Baltimore, a silver Goblet, valued at	\$10
For the best MERINO RAM, to Roger Brooke of Montgomery County, a silver Can, valued at	\$10
For the best SIX FAT WETHERS, to Col. Edward Lloyd of Talbot County, a silver Can, valued at	\$10
<i>Discretionary Premiums.</i>	
For the <i>Teeswater Bull</i> of John S. Skinner, a silver Can, valued at	\$10
For the <i>Teeswater Bull</i> of Lloyd N. Rogers, of Baltimore County, a silver Can, valued at	\$10
For the <i>Teeswater Cow</i> of Doctor Allen Thomas, a silver Can, valued at	\$10

IMPLEMENTS OF HUSBANDRY.

The committee appointed to examine the Implements of Husbandry exhibited to the Maryland Agricultural Society, have the honor to report—

That the extent and variety of the articles exhibited was very great. Of PLOUGHS, specimens of the invention or manufacture of eight different persons were shown—of Mr. Chenoweth, Mr. Sinclair, and Mr. Ford of the city of Baltimore; of Mr. Hinks of Baltimore county; of Mr. Davis of Georgetown, D. C.; of Mr. Wood, by Mr. Bernard of Philadelphia; and of Mr. Murray of Hagerstown; all, in the opinion of the Committee, well constructed and valuable instruments. Of the particular or relative merits of most of them, as there were no means of submitting them to efficient trial, nothing can be said with certainty. It would, however, be improper not to remark that, two of those ploughs, are of recent introduction, and likely to be found advantageous; that is to say, the Hill-side Plough made by Mr. Sinclair, on the principle of Col. Randolph's Plough, with shifting mould boards, as being easily managed and well calculated for the important purpose of horizontal ploughing on hill sides; and Mr. Davis' cast iron shovel plough on a new construction, as a cheap and efficient cultivator.

OF STRAW CUTTERS.—There were five exhibited, one each by Mr. Skevetszer, Mr. Hyde, Mr. Davis, Mr. Eastman,* and Mr. Bernard. These were all carefully tested by actual experiment, and the committee was of opinion that, the one manufactured by Mr. Bernard is the most operative, and from its simplicity, best calculated for general use.

OF WHEAT FANS, there were two kinds, one exhibited by Mr. Watkins, the other by Mr. Beatty.

The Committee determined that the one made by Mr. Watkins of Hagerstown is decidedly to be preferred—it works with three screens, and it was deemed an exceedingly

valuable improvement in this necessary implement.

A HARROW of peculiar construction made by Mr. Barnard, from an English design, to expand and contract at the will of the operator, appeared to the Committee to be an adjustment not only curious but useful.

There were several other very ingenious improvements on English implements, to adapt them to the use of this country—such as Mr. Sinclair's machine for sowing plaster of Paris, grain, and grass seeds—his corn planter, for drilling Indian corn and garden seeds:

Mr. Bernard's turnip drill; Mr. Ford's roller, and the scarifiers made by each of these artificers.

Mr. E. S. Thomas of Baltimore had on the ground a large and valuable collection of imported agricultural implements, such as ploughs, drills, hay-makers, apple-mills, turnip-slicers, many of which seem to be well adapted to their several objects, and which may possibly be used with advantage in our husbandry.

The Committee presuming that it is within the sphere of the duties assigned to them, beg leave to mention that there was exhibited a little machine for domestic manufacture—a wool spinner, worked by hand, drawing six threads, invented by a Mr. Brown of Rhode-Island; it is simple and easily kept in order—they believe that it will be a valuable acquisition in Families.

JOHN MASON
J. H. POWELL } COMMITTEE.
SM. OWINGS.

PROCEEDINGS OF THE MARYLAND AGRICULTURAL SOCIETY, AT ITS JUNE MEETING.

At a meeting of the Maryland Agricultural Society, held at the Maryland Tavern, on the 7th and 8th days of June, the following proceedings were had:—

The president having taken the chair, the various committees were appointed to inspect, and report on the animals exhibited for premiums.

The subscriptions of the old, and many new members of the Society were then received.

The Society spent the rest of the day in viewing the various, beautiful and valuable animals and implements collected for their gratification and the public good.

SECOND DAY.

The society met and received the reports of its several committees on the Stock exhibited, and the President delivered the premiums to the successful candidates as awarded by the committees.

The election was then held and the officers of the last year were re-elected—to wit:

ROBERT SMITH, *President.*
EDWARD LLOYD, *Vice-President.*
JOHN E. HOWARD, jr. *Secretary.*

J. S. SKINNER, *Corresponding Sec'y.*
Board of Agriculture for the Western Shore of Maryland.

Charles Ridgely, of H. James Steuart,
John T. Mason, Henry Wilkins,
Frisby Tilghman, Elisha De Butts,
Virgil Maxcy, John Yellott, jr.
Wm. E. Williams, and
George Calvert, Jacob Hollingsworth.

The following resolutions were then adopted by the Society.

Resolved, That the president and vice-president of this Society be authorized to appoint one agriculturist in each county in the State, and one from the District of Columbia, to form a Convention to meet in the City of Baltimore, on the 2d Monday in Sept. next, whose duty it shall be to revise the present Constitution of the Agricultural Society—and to make such amendments thereto as may be deemed necessary or proper—and further, that said convention shall have full power to make all such arrangements as they may deem necessary, more effectually to promote the objects for which this Society has been established.

Resolved further, that if any person appointed should not be able to attend, that he have full power to depute some other in his stead, the object being to ensure the representation of each county in the State.

Resolved, That the Secretaries of the Society be requested to attend the meetings of the above Convention.

On motion of the Hon: Edward Lloyd,
Resolved unanimously by the Society, That in their opinion the "American Farmer," edited by John S. Skinner, Esq. is a publication justly entitled to the patronage and support of every farmer and planter, and that its Editor deserves our approbation for his judicious and zealous efforts to advance the interests of agriculture.

Resolved, That the thanks of this Society be offered to John S. Skinner, Esq. and to the members of the Committee of Arrangement for the able and meritorious manner in which they have conducted all of the arrangements that were necessary to be adopted for the purpose of holding the Cattle Show and Fair, which have been so gratifying to all who compose the said Society.

Resolved, That the discretionary premiums be given as recommended by the Committee on Neat-Cattle, in their report.

Resolved, That of the funds in hand, there be appropriated Forty Dollars to be given in four premiums of silver plate, for the exhibition of such implements as shall be reported as worthy of receiving them, by the Committee on Implements; and that J. S. Skinner, Esq. be authorized and requested to have them made and delivered.

The Society, honoured by the company of distinguished agricultural visitors from the adjoining States, then partook of a dinner which had been provided for them; and afterwards adjourned to attend the offer of some valuable animals and useful implements at Public-Sale before they left the ground.

In reviewing the circumstances of this exhibition, we cannot help congratulating the agriculturists generally upon the good consequences likely to result from it. The beneficial tendency of such displays is universally acknowledged; nor will it be long before the influence of the Maryland Society will be felt in the most unequivocal manner. The view of our best Live-Stock, and the practical knowledge gained, as to the points which the most eminent breeders have found it most important to encourage in each description of domestic animals, will correct the erroneous notions gen-

* Hotchkisses improved.

nerally entertained, and often indulged even by experienced farmers. It is difficult to convince us that favourite animals have real defects, after we had exercised our partial judgments in selecting, and paid almost parental care in raising them; but when some of the best animals of this and foreign countries are grouped before us so as to be easily compared, seeing then becomes *believing*, and we are compelled to yield up our opinions to the force of ocular demonstration. We offer the following illustration, and we know that we shall be forgiven, since we only use it in confirmation of our preceding remarks. A farmer brought to the present show a Bull of his own raising, and confidently recorded him as a candidate for the first premium—this animal had been considered a very fine one in the neighbourhood in which he was bred—and the owner and his neighbours believed that he would deserve and take the prize.—But, upon comparison, this Bull was seen to be only a middle sized and coarse animal, marked it is true by strong points, but these were rather defects, such as we should strive to obliterate. The worthy owner went home satisfied that his knowledge had been defective; that the true principles of breeding Stock can only be discovered by critical comparison and judicious observation. It is the chief object of these meetings to afford suitable opportunities for the farmers, who repair to them, to make these important examinations upon the subject of their business: that, instead of passing through the inexperience of agricultural infancy, they may be enabled to commence at once in the vigour & strength of manhood. The general interest excited by these public spectacles has another salutary effect; it arouses our attention and determines it to agricultural subjects. "Why," said a gentleman distinguished among us for public spirit, who was a few days after the show riding over the fine estate of a member of the committee of arrangements, and was admiring the beauty and expatiating upon the superior excellence of the different breeds of animals before them, "Why," said he, "as often as I have visited you, I never before knew that you had such fine animals as we now see here!! Tell me, how has this happened?" "It was," the other modestly replied, "because, my friend, you never, until this day have felt the least desire to see my stock." This visitor we understand now wishes to possess, and intends to import and to raise animals, as valuable as those owned by his judicious friend.

It is in this manner that a laudable emulation will be excited and directed, that our wealthy citizens will become generous competitors, proud of securing real advantages to the State, and of distinguishing themselves as the importers of the best animals, from all parts of the world—they may thus become true benefactors of their country. The individual who claims the merit of having first introduced the culture of cotton as a crop in the Southern States, yet lives in Georgia; and he is justly more proud of the honour of having thereby saved the planters of the South from ruin, than he could be of a Nabob's wealth.

In conclusion, we would take passing notice of

the great facility with which persons from so far as distance, attended the meeting—from Philadelphia several of the members of their agricultural society—from Delaware several proprietors of its rich meadows, on which the celebrated cattle and sheep are fattened—from the E. Shore our Vice-president, and some of its distinguished agriculturists—from the District of Columbia and its neighbourhood, citizens—public-officers and warriors who have long been known and universally esteemed—from beyond the Blue Mountains some of the most eminent of those who till that fertile and productive valley—in short, from every quarter the access was so easy or direct, that leaving home on the day or the evening preceding and some even on the morning of the Show—the company assembled on the ground, and went through the business of the day without complaining of fatigue, or feeling any inconvenience from the undertaking.

The distance from which Ploughs and other large implements were brought for exhibition, as noticed by the Committee, is very remarkable: especially, when it is considered that the plan of the exhibition did not at first offer any direct rewards for the best that should be displayed; and, although the Committee upon Implements have not awarded the premiums placed at their disposition—still we understand and are happy to hear, that the interests of their makers have been substantially benefited by the exhibition: Some sales were made, and in some instances many orders given for approved implements—the consequences will, we are persuaded, be mutually and greatly beneficial to the Artists and Farmers.

J. E. HOWARD, Jr. Sec'y.

From the Massachusetts Agricultural Journal.

A PREMIUM CROP OF POTATOES.

GENTLEMEN—In entering the lists of competition for your premiums on agricultural products, I deem it necessary to state that the land in which one acre of potatoes were raised (and entered at Brighton, October 16th, 1820,) the present year, was broken up in October, 1819. The two years previous, had been used as part of a sheep pasture, on which the sheep were folded at night. The situation of the land, is near the foot of a heavy swell, and is gently inclining to the east, the soil a dark yellowish loam, such as we call chestnut land. In the spring of 1820, the land was cross-ploughed and harrowed, and between the 21st and 27th of May, the crop was put in, in the following manner. Six furrows were cut lengthwise the piece, (as owing to the local situation of the land, the whole manure had to be carried across the field in various directions, which will account for six furrows at a time only.) The manure, (which in quantity, was about 37 loads, and in quality, that made from neat cattle and sheep, the 20 loads from sheep was three fourths straw, their winter litter) spread in, and the cut potatoes planted one foot apart, the horse plough then followed, throwing the loam on the manure and potatoes; this again followed by the hand hoe to dress down, or add the

loam, which completes the process in about half the time and much better, likewise, than the same entirely performed with the hoe.

In ten days the weeding commenced by running the horse-plough as near the manure as possible, throwing the loam in a ridge between the rows (which were three feet apart) following with the hoe to dress the plants. About the 23d June, the ridges were split with the horse-plough, throwing an equal quantity of the same to each row, followed with the hoe as above.—The vines at this time were not more than 8 inches in height and not yet in the bud. From this time, the field was not entered till harvest which commenced the 23d October, and on finishing the same, had by admeasurement, six hundred and fourteen bushels.

The seed used, was forty bushels, part the Rio-de-la-Plate reds, and the remainder the Fitchburg whites. The reds gave a superior yield on a like quantity of land in the proportion of six in eleven, in bushels, but the whites were five pounds in a bushel the heaviest.

I would here observe (with much deference to the opinion of more experience farmers) that as the present season has been too hot and dry for potatoes, I think 700 bushels can be produced from the acre in this country in our best seasons, for the successful culture of this valuable root.

Expense arising from the culture of one acre of potatoes in the year 1820.

Breaking up	- - - - -	\$5,00
Cross-ploughing and all other labor in planting	- - - - -	12,00
37 huck loads manure	- - - - -	37,00
40 bushels potatoes, at 25 cts.	- - - - -	10,00
2 hoeings	- - - - -	8,00
Harvesting the crop, one man 20 days at 75 cts.	- - - - -	15,00

\$87,00

PAYSON WILLIAMS,
AARON BIXBY.

WORCESTER, ss. Nov. 8th, 1820.

Personally appeared Payson Williams, and Aaron Bixby, and made oath, that the foregoing statement subscribed by said Payson Williams, and the said Aaron Bixby, contains the truth.

Before me,

CALVIN WILLARD. *Justice Peace.*

This is to certify that I, Philip F. Cowden, being sworn surveyor of the town of Fitchburg, in the county of Worcester, have this day surveyed a certain piece of potatoes, for Payson Williams, and find the same to contain one acre and no more.

PHILIP F. COWDEN.
Fitchburg, September 28th, 1820.

TO PRESERVE CABBAGES AND POT HERBS FROM
CATERPILLARS AND OTHER INSECTS.

Sow hemp on all the borders where you intend to plant cabbages.

You will be astonished to see, that, although all the neighbourhood is infested, the space inclosed by the hemp, will be perfectly

free from them, no vermin of the caterpillar kind will approach them.

This arises either from the aversion they have to this plant, or the fondness birds have for perching on it, which enables them at the same time to destroy the caterpillars. J. S.

AN ADDRESS

Delivered before the Agricultural Society of Susquehanna County, at its organization, December 6, 1820. By R. H. ROSE, Esq.

GENTLEMEN—The formation of the Agricultural Society, and our meeting this day, are evidences of the interest we take in the welfare of the country, and of a desire to improve the agricultural information of ourselves and our neighbours.

It is unnecessary for me to trace the origin and history of Agriculture, the most important of all branches of knowledge; or to shew the estimation in which it has been held by the wisest and best men in all ages. It must be evident to every one, that it is the origin of all wealth, the foundation of all power. It is useless to quote the page of history for the names of those who have been called from the toils of the field, to save or to govern empires. In our own times, and among our own citizens, we see, drawn from the plough, many splendid examples of civic knowledge and military skill. The duties of the rural life are those to which the greater part of our citizens are bred; and in the tranquillity of its scenes, nearly all mankind in their wane of years, love to recline. The different Presidents of the United States have retired from the busy pomp of office, to repose in the calm seclusion of their farms; and they, whose eloquence has charmed, and whose knowledge has enlightened nations, have, with a wisdom greatly to be admired, returned to the domestic duties of the common citizen, apparently desirous of being distinguished above their neighbours only, by being more expert and scientific farmers. And this is equally wise and patriotic; for Agriculture is the basis of our population and prosperity; and he who disseminates a knowledge of its improvements, adds to the physical force of his country.

The knowledge of Agriculture is generally supposed to be simple, and easily to be acquired; and this belief has prevented many from paying that attention to it which is necessary, in order to be well informed in its details. But, besides persevering industry, and unremitting care, which are indispensably necessary—science is as important here as in any thing else, and no one need hope to become a skilful farmer, without a widely extended knowledge of things connected with his art. Placed as we are, in a new country, of much natural fertility, we are not called upon to renovate exhausted or worn out lands, but all the skill requisite for the farmer who tills those, is equally important for us, in order to prevent the exhaustion of that fertility with which our fields are given to us. Skilful culture can make a poor farm rich; and it must therefore be unparadoxically neglect to suffer a rich farm to become poor.

A farmer should be well informed of the nature of soils, and of the various plants adapted to them, in order that he may cultivate such as are best calculated for his particular fields, and not to waste his labour on those which flourish best in other situations.

Geologists suppose our earth to have been masses of rock of various kinds, but principally silicious, aluminous, calcareous, & magnesian—from the gradual attrition, decay and mixture of which, together with an addition of vegetable and animal matter, is formed the soil; and this is called sandy, clayey, calcareous, or magnesian, according as the particular primitive material preponderates in its formation. Sand, clay, and limestone, or calcareous earth, each operates as a manure upon the others, when they exist in too great proportion; in consequence of producing, by their intermixture, the requisite state of cohesion, not too loose nor too rigid for the roots of plants; and it is observed by that celebrated agricultural chemist, Sir Humphrey Davy, that no soil is fertile which contains as much as nineteen parts out of twenty of any of the constituent earths which have been mentioned. Different vegetables flourish best in different modifications of these component parts, as they prefer dry or moist situations; but the most valuable soil for general purposes, is that in which they are mixed in such proportions, as, while moisture is suffered to pass freely, and roots easily pervade it, there is sufficient tenacity to give support to the plants, and enable them to spread their leaves and branches to the light and air, and to resist the impulse of the winds.

Plants resemble animals in many parts of their system. The roots and leaves serve the purposes of a mouth and lungs; and in many other instances of their economy, they are not unlike the organization of the nobler parts of creation. They are operated on by food and stimuli much in the same way; and in like manner, are they, in decomposition, an appropriate food for the vegetable system. Some plants, as the *dionaea muscipula*, the various species of the mimosa, &c. evince an inherent power of motion, and shrink at the slightest touch. The disposition of every tree to throw out its branches towards open places, in order to obtain light and air, and to send off its roots in the most suitable directions in search of food, displays an apparent consciousness of situation. A tree, growing in a position where it is surrounded by others, and defended from the winds, disperses its roots in quest of nutriment near the surface where it is most abundant, & wastes none of its strength in low limbs, but springs upwards, tall and thin. But the same kind of tree in a situation exposed to the storm, takes firm and deep root in the ground, and, as if conscious of the power of a lever, spreads its branches below, while it contents itself with a moderate height, that the gale may the more readily pass over it.

It has been contested, whether earth is of any use to plants, except to afford them a support; water being supposed their chief, and, by some, their only food; but all plants, in some degree partake of the soil in which they grow; and their ashes, by analysis, are found to con-

tain, besides potash, the carbonates of lime and magnesia, silica, alumina, and certain metallic oxides. It is therefore most probable, that, instead of being the sole food of the plant, as contended by some; or, according to others the mere solvent of the food and the means by which the plant is enabled to absorb it, water acts in both ways as a direct nutriment in itself, and as the means by which the plant is enabled to obtain other food, necessary for its health and vigour. The leaves, as well as the roots, are furnished with absorbent vessels; and some vegetables draw the greater part of their nourishment, by means of their leaves, from the air, which, like the soil they stand in, is a compound, some parts of which are more favourable to vegetation than others.

The soil of the beech and maple lands, which compose the greater part of Susquehanna county, is a sandy loam, about eighteen inches in depth, resting on a compact bed of argillaceous earth, and minute sand; which, from its retentive nature, is extremely well calculated to prevent the escape of moisture, and to preserve the fertilizing quality of the manures which may be intermingled with the superincumbent soil.

It must be confessed, that agriculture appears to be, in general, but little understood in our county; and the neglect with which fields and farms are treated, is calculated to give to strangers an unfavourable opinion of the soil. In many places we see fields but lately cleared of their woods, neglected and suffered to be overgrown with bushes and briars; or crop after crop is taken from the same field, the seed having been strewn upon the stubble of the preceding harvest, and merely harrowed in; no plough used; and, indeed, sometimes no harrow, the seed and the harvest being trusted to the mercy of heaven. The soil must naturally be very prolific, or who could expect to see such a seed time followed by any harvest!

There is also a want of attention to the fences, as well as of care and neatness about the farms, for which we can seek an excuse only in the recollection of the very short space of time which has elapsed since every farm, as well as the seat of justice at which we are now assembled, was covered with an apparently interminable forest. And when we see the improvements which have sprung up with such rapidity, we may reasonably hope, that a few years more will change the intention which we are now disposed to censure into economy and care. This Society may do much good; and it is a pleasure to see a disposition to become members of it, generally pervade the county. It is to be hoped that reformation will begin among its members. There is no slight connexion between industry and good morals; and we might become more attentive to the appearance of our farms, if we supposed, as is sometimes the case, that their condition was indicative of the good or ill qualities, as citizens and neighbours, of their owners.

A farmer should attend to the neatness and convenience of his house, as on that much of the health and comfort of his family depends. The Dutch have a proverb, that paint costs nothing. It preserves and beautifies his buildings; and neatness commenced in one thing

is generally extended to others. But he should remember that his farm is his great object, and take care that no subordinate parts exceed their due proportion of expense. Neatness costs nothing. It is frequently the case that a farmer builds a larger house than he can complete, and it remains afterwards unpainted and unglazed, a mark of his want of skill in proportioning his expenditures.

No one sees a good garden attached to a farm house, without forming a favourable opinion of the owner's industry.—Much of the attention required in it may be done by children, and much of the comfort and economy of a family depends on an ample supply of culinary vegetables.

Great care should be taken in the proper position of the barn, both for the general convenience of the farm, by which much labor may be saved, and for the preservation of the manure made at it; on which much of the farmer's wealth is to depend. The great secret of good farming is, to enlarge the dung heap. Wherever manure can be made in abundance, the farmer has his crops at his command. But when crops are raised, there is no safety for them without good fences. A farmer will be likely to experience more vexation from bad fences, than from any other cause. His own, and his neighbor's cattle are perpetually annoying him, and the fairest hopes of his fields are at the mercy of all the unruly animals on his farm, or in his vicinity.

An orchard is an object of much importance. The best fruits should be planted. The ground they occupy, is the same as that occupied by the worst.

The indiscriminate destruction of timber, which we see in this county, is deserving of much reprehension. If, in clearing lands, groves of timber were left interwoven among the fields, besides the beauty of a farm cleared in this manner; they would be useful as a shelter for cattle in the heats of the summer, and as a reservation of fuel, against the time when that article shall become scarce, as it has done in all the long settled counties, where timbered lands are considered much more valuable than the cleared. Many think they can never digest the abundance which is around them; but if they will compare what is already cleared off, with the shortness of time which this county has been populated, they will have reason to change this opinion. It has been calculated, that from ten to fifteen acres are necessary for the permanent supply of each fire-place, where wood is used much less profusely than with us; and this independent of all the other farm uses to which it is applied. A farmer should examine his ground well before he cuts a tree, and leave those parts where it will be most useful or ornamental. He should also be careful to leave the best kinds of timber, especially the sugar maple, the produce of which is not only useful in his family, but may be generally sold at twice the expense of procuring it. This tree is one of the most beautiful of our forest; and, consequently, if planted along lanes, or division fences, would be ornamental as well as useful.

No expense should be spared in procuring

the most suitable implements of agriculture. Every one knows the labour which must be expended, and the time lost, if his implements are out of order; and should recollect the adage that "time is money;" an adage which, I believe, you will all say, is but little attended to among us. A place should be provided to receive all the farming tools, that no time may be spent in searching round the farm for them, when wanted; and whenever an instrument is done with, it should be deposited in its proper place.

A farmer should not attempt to sow or plant more ground than he can accomplish in suitable season, and attend to in a proper manner. It is better to cultivate one acre well, than several ill. He will get both more reputation and more produce by it.

The best seeds should always be sown. Much has been said, and written, about the necessity of changing seeds, and procuring new ones from distant places; but doubts may be entertained of the propriety of this practice, especially if a farmer endeavours to raise the best seeds, and if a rotation of crops be attended to. The utility of a rotation of crops appears to be pointed out by nature, in the changes of plants and timber which she is perpetually exhibiting to our eyes. There is every reason to believe, that at a former period this county produced timber different from the kinds which are now prevalent. Places covered with beech, sugar maple, and hemlock, have formerly been clothed with white pine and oak, of which, in some spots, are still to be seen the gigantic remains. And where beech and sugar maple timber have been lately burnt off, and the land neglected, other kinds, particularly cherry and birch, in astonishing abundance, grow in their places. These are proofs of the changes which nature is constantly effecting. This disposition to change their ground, has been supposed to be evinced by some plants which are propagated by their roots, as potatoes, which, by extending themselves beneath the surface, form new beds as they spread; and the strawberry effects the same change by its runners. Nature has provided many plants with the power of shifting the position of their progeny by downy seeds, which are scattered by the winds; others again are furnished with barks by which they are attached to passing animals, and carried abroad. Writers on agriculture say, that, by continuing the culture of a particular plant for a long time in one place, the ground, as they term it, becomes sick of it, and refuses to bear it any longer; that is, perhaps, the peculiar quality of the soil, which gave it a strong propensity to particular vegetation, becomes exhausted, and it is rendered necessary to introduce new plants. But, although this change of plants be proper, it does not follow that a change of seeds is equally so; and I think that a farmer acts upon the wisest system, who endeavours to make his own grounds supply him with the best seeds. By doing so, he is more certain of the kind and quality of those which he sows, than when he trusts to those procured from a distance. By crossing different plants of the same genus, it is probable that many useful varieties may be produced.

The farmers among us who have ploughed their lands, (and foreigners will bear with astonishment of farmers who do not plough) have found in their crops proofs of the advantage of their culture, but even they do not plough deep enough. The plough cannot be forced to the bottom of our soil—the subsoil is beneath its reach. The quality of the crop must depend, in a great measure, on the depth of ploughing, and the mellowness given to the soil by culture, which enables the roots of plants to spread themselves through it, and obtain more abundant nourishment. Deep ploughing permits all excess of rain to drain from the surface, to a depth where it is retained for the uses of the plants, as the roots may require it: and hence, in such situations, plants are less liable to suffer from the extremes of rain or drought. It cannot be expected that wheat or corn will grow well in ground matted with the roots of grass or weeds. In this particular, new land has an advantage over old. It is received pure from the hand of nature; and if weeds are afterwards seen in it, they are the consequence of neglect. If the proper kinds of grass seeds be sowed, in suitable quantity, they will effectually prevent the growth of weeds.

The grass seeds that are used here, are neither, in general, of the right kinds, nor are they sown in sufficient quantity. Both meadow and pasture should be formed by a mixture of grasses growing at different periods, so that they might follow each other in succession. White clover, among the best pasture grasses, is a native of our soil, and grows spontaneously. Sir John Sinclair, one of the most scientific farmers of the age, recommends land to be laid down with ten pounds of red clover, ten pounds of white clover, ten pounds of trefoil, and three pecks of rye grass seeds. He considers the grass better when sown thick—and observes, that if it be sown too thick, it will die off to a proper standard. Some farmers in England sow upwards of three bushels of grass seeds per acre. Perhaps in our soil nothing would be found superior to a mixture of red clover and orchard grass, both for abundance of produce, and permanency of pasture.

In England, where farming is carried to great perfection, and where the annual rent and taxes of a farm would purchase the fee simple of one of the same extent in Susquehanna county, farmers find grass their most profitable produce—and this, although the price of grain, compared with that of cattle, is fifty per centum beyond what it is with us. Our soil is peculiarly well adapted for raising the artificial grasses—and the distance we are from the markets of Philadelphia and New York, offers strong inducements to the breeding and fattening of cattle. For this purpose, however, root crops are particularly necessary—and to raise these to perfection, manure should be liberally used. We have heard the story of a person removing his barn, rather than his dung heap; and I am not sure that we could not find examples of this nature in Susquehanna county. In the use of dung, it has been sufficiently proven, that although short and rotten dung will give, of some things, the best crop for the first year, yet long dung is more lasting, and will produce a greater effect the second and third years. Arthur

Young, to whom Great Britain is indebted for much of her agricultural knowledge, says, "that sixty-seven cart loads of fresh yard dung, produced seven hundred and forty-two bushels of potatoes; while at the same time, the same quantity of yard dung, after 6 months rotting, yielded but seven hundred and eight bushels. But had the fresh dung been kept as long as the other, it would have taken twice or thrice as much to make the quantity used"—the dung by rotting, settling into a smaller space. A ton of straw, it has been calculated, will, if judiciously managed, make four tons of dung, by which a third of the ground may be manured from which the straw was taken. Dung, during the putrefactive process, gives out gases, which are peculiarly useful to vegetation; and it is most beneficial when applied to the soil during that process. If, as it has been stated, fresh dung is injurious to tap roots, it must be from the excess of its stimulus to the plant. It is considered best not to overload the soil with manure, but to apply it to fallow or root crops only, and that at the rate of from ten to fifteen tons per acre. In countries that are very populous, the greatest care is necessary to save every article that tends to fertilise the ground, in order to supply the demands made on it by the population. The Chinese are said to save even the clippings of their hair and nails for this purpose. When the rice fields are flooded, they procure the roe of fish which they put into them, and which vivifying, a part grows large enough to be eaten by the time the water is drawn off, and the remainder, by rotting on the ground, improves its fertility. Young says, that were he an inhabitant of a particular part of France, he would manure four acres annually with flies, which are there in astonishing abundance; and Darwin proposes to place the dung heap in a situation where it may be flooded with water, and becoming a moving mass of insect life, in that state to be conveyed to the field. In England, malt dust is not unfrequently used; and an opulent brewer has even manured his fields with dried yeast. Ground bones are also employed there in such quantities, as to exhaust their own supply, and call for aid from other countries; and not content with the remains of inferior animals, bits of lace, and fragments of coffins, sometimes mingled with the imported bones, indicate the search for the means of increasing the product of the farm, to have been extended to the cemetery and the field of battle. Among the various things used as manures are, lime, gypsum, chalk, marl, sea shells, common salt, sea and fresh water weeds, fish, horn slavings, woolen rags, ashes, peat, oil cake, soot, night-soil; besides clover, buck-wheat, and other green crops ploughed in.

A difference of opinion exists, whether the beneficial quality of dung is lost by being washed by rain below the soil, or by evaporation through it. They who advocate the opinion of its sinking will prefer putting the dung in shallow; while others will be in favour of covering it deep. Probably both opinions are, in some degree, right—and that a part in the form of gases, escapes into the air, while the more earthy parts dissolved by the water, are washed deep into the ground.

Potatoes are an excellent fallow crop—for, independent of the attention required in their culture while growing, it is necessary to turn over every particle of soil in searching for them, at their harvest. Other root crops, however, may be more profitable, and their product much more abundant. Our soil is extremely well calculated for turnips, ruta бага and mangel-wurtzel, all of which yield great crops; pumpkins are usually raised by our farmers among their corn—but, although useful that way, I am persuaded that there are few crops that will better pay the farmer's care, than pumpkins raised by themselves. And it is useful for a farmer to have as great a variety of forage and provender as he conveniently can. Without pumpkins and abundant root crops, he will feed his cattle to great disadvantage.

The most approved breeds of animals should be procured, particularly those which are fattened with most ease, as they are kept with less expense than the lank and hungry kinds, and better repay care and attention to them. The long legged hogs cost more to fatten than the short legged. The long woolled and valuable breeds of sheep cost no more to keep than those of the worst description—and the cow which gives an abundance of milk, consumes little more of the farmer's produce, than one totally unfit for the dairy. The most desirable properties of live stock have been treated by writers on the subject, under the heads of size, form, early maturity, hardness of constitution, lightness of oal, prolific quality, a tendency to grow and a disposition to fatten. It is generally conceded, that moderate sized cattle are to be preferred before the very large ones, as being more easily fatted, kept at less expense, and more marketable. Cattle should be chosen with short legs, their heads and bones small, their bodies long and round, and chests deep and capacious. By an early maturity, much of the expense of their food is saved; which is also the case with those breeds most disposed to fatten.

Every farmer should seek for the best kinds of all the articles which he intends to cultivate, and the country will be greatly indebted to him who shall introduce the best breed of any of the domestic animals, or whose example shall spread among his neighbours the culture of the most useful kinds of grain, grasses and roots.

Domestic manufactures are intimately connected with the farm. I mean those manufactures properly called domestic—those which are made in the farmer's house, and by the hands of his wife and daughters, whom he furnishes with wool and flax of his own produce, and whose industry, properly applied, while it shields them from the dangers of idleness, clothes the family with strong and warm apparel. Too much attention cannot be paid to this, and it remains for the society to encourage female skill and industry, by premiums for the best articles of household manufacture, which shall be exhibited at our next meeting. Of the advantage of these manufactures there cannot be a doubt. They tend to make the farmer independent, by reducing his expenses, and furnishing him from his farm and household with articles of indispensable necessity; and the in-

dustrial requisite in making them, is useful to the good conduct and morals of his family.

But such manufactures are very different in their effect, from those which are accomplished by crowds of men, women, and children, grouped together in buildings which resemble hospitals or barracks, and which must be forced and supported by extravagant bounties, in the shape of duties on importations. The large manufacturing districts in Europe are noted as the abodes of ignorance, want, and disease; and this must be the case wherever thousands depend for their daily bread upon the inclination of one person, or on the uncertain demand for the manufactured article. A diminution of the price of this, may render it impossible for the fabricators of it to procure the means of subsistence—while the situation of the farmer is so fortunate, that no diminution of the value of the products of his farm, can lessen the facility with which he may find the means of support. To him the fluctuations of trade and commerce are comparatively of little importance.

The natural and healthy growth of manufactures in the United States, is a desirable circumstance. But great bounties would go to enrich the few owners of the establishments, and be unfelt by the many labourers employed in the works. It was an observation, and a very correct one of a former President of the United States, that "agriculture, manufactures, commerce and navigation, the four pillars of our prosperity, are most thriving when left to individual enterprise." But if, instead of being left to individual enterprise, large bounties are given to encourage the manufacturer, why should not the farmer expect the government to pay him also bounties for his produce, which, when exported, tends to enrich the nation? But the genius of our government is opposed to this system of favoring one class of citizens at the expense of the others; and we had better leave the tangled web of European policy untouched. The conversion of the robust farmer into the palid manufacturer, certainly does not appear to be a desirable metamorphose; and the policy of adding to the high duties already laid on imported articles, by which the inducement to smuggling would be increased, and the public revenue probably so diminished, as to lead to the adoption of a direct tax on our farms, is, at least, of a very questionable nature. The certain result of the measure must be, a diminution of commerce, and a serious injury to the prosperity of the navy, which the events of the last war have convinced us, is the cheapest, and most efficient national defence. Is there one so lukewarm as to look with indifference on any source of his country's prosperity and glory! What shall we then think of any measure, which might jeopardize that arm, to which, participating in our country's weal, we look as to the sure guardian of her fame, and the principal foundation of her power!

If the wealth of a state consists in the surplus of its products, what can be more wise than to promote, by all means, a diffusion of agricultural information among our citizens—and the information of societies, whose particular objects are the improvement of the soil, and the way to make two blades of grass grow

where but one sprung before; or two bushels of wheat where but one could, by the former culture, have been produced! Money appropriated by a government for these purposes, is like a trifling amount of seed scattered on the land, from which an abundant harvest is to be gathered. Frederick of Prussia, who deserves to be not less celebrated as a political economist, than as a successful commander, expended upwards of a million of dollars annually in the agricultural improvement of his kingdom, (one not naturally favoured by Ceres,) and by this judicious expenditure, he enriched his subjects and filled his treasury to overflowing. Indeed, whatever money may be expended in this way, must be returned to the public coffers infinitely multiplied; and the legislator who acts on different principles, neglects his country's prosperity, and may well be compared to the wicked and slothful servant, who, instead of endeavouring to increase the talent entrusted to his care, concealed it in the ground.

England has derived infinite advantage from the establishment of a board of agriculture, and the formation of agricultural societies. The state of New York has, very wisely, pursued the same path, with a zeal which ensures success, and we may hope that Pennsylvania will not linger behind, when the extent of her territory, and her internal wealth should urge her to be among the foremost in the race of improvement; and some evidence of a favourable disposition is displayed at present, since we meet under an act of assembly incorporating us as an agricultural society.

Among the means of disseminating useful knowledge, are the newspapers of the county; and the printers may render much service, if they will abstain from political animosity, which destroys the happiness of neighbourhoods, and devote a considerable part of their papers to agricultural topics. Fortunately for the peace of the community, there is, at present, little discord on the subject of general politics; all parties in the national government being so blended together, that the former lines of division are difficult to be discovered. Who shall be the pilot or helmsman of a little consequence provided the course steered be a correct one. And as to the affairs of the subordinate governments composing the Union, the making of good roads for the transportation of articles raised within the county, is of infinitely greater importance to the inhabitants, than the election of any candidate to the chair of state.

It is to be hoped that the legislature will possess that liberal and enlightened spirit, without which no public business can be conducted in a prosperous manner; and that the appropriation bill, for the purpose of aiding the internal improvements of the state, brought before the assembly at the last session, will be passed at the present one. The formation of good roads is of the utmost importance, as the means of facilitating the intercourse between the different parts of the state, and of enabling the surplus produce to be taken, with the least expense, to the commercial depot. It must be recollected that this surplus is our only gain; and that what is consumed in the family, adds not to the value of our estates. What, therefore, is saved by the farmer in the transportation of his grain

and cattle to market, is so much made, and added to his wealth. A small amount of saving, calculated on each bushel of surplus grain, and head of cattle raised in Susquehanna county, would make an important total: and the legislator who shall devote his exertions to produce, in our public councils, a proper sense of the importance of roads, bridges and canals, will render much more service to the community, than he who shall spend his time in the hickerings of party prejudice, or the "low ambition" of endeavouring to distinguish himself as a political leader.

We have reason to be satisfied with the exertions of the late members of the senate and assembly from this district, in favor of turnpike roads, bridges, and canals; and I hope that they who have been lately elected, will emulate the zeal of their predecessors, in advocating the appropriations to these most necessary improvements of the state.

HAY MAKING.

The great value of a HORSE RAKE, with directions for making and using it.

STR,

As I have received much information by the perusal of the American Farmer, I ought freely to give any that I know would be useful to farmers. I will therefore describe the hay rake that has been in use near the South Branch of the Potomac for twenty years. We think it truly a labour saving machine—the head of it is made of strong white oak scantling, three and a half inches by four and a half, and ten feet long—for it must have weight and strength. The teeth are of strong wood, and put through the head with an inch and half augur, distant about nine inches from centre to centre, about eighteen inches long below the head, and go so far through as to admit a pin above the head, following a half inch augur, to keep them up to a half inch shoulder, which is on the back part of the teeth, where they enter the head, and which is intended to give the teeth strength, at the spot where it is most needed, as they seldom break at any other place. The teeth are then shaved off thin before and behind, leaving sufficient substance in the middle—they are made true to a line on the front edge, and of an equal length. We then put two shafts in the other square of the head, something like cart shafts, but straight poles will do as well; they are put through the head in a mortice one inch by four, and go through the head so far as to admit an inch pin behind the head for the convenience of taking the shafts out, when we wish to put the rake in a cart to move from one meadow to another, or when we want to stow it away after our mowing is done. The shafts are of sufficient length to let the rake drag about three feet behind the horse, which gives room enough for the hay to collect in. They are made fast to the lames by a pin which is put through near to the end to put a rope or chain round.

We have two sets of handles, one about eighteen inches long, put in with a five quarter augur, and something like plough handles, for the rake to press the teeth to the sod, as the rake inclines to rise when full of hay; the others two short pins, put in between the

long handles, and low in the head; when the rake comes to his winrow, he lets go the long handles, and takes hold of the short pins, to lift up his rake, and drop the load at its place; the long handles stand too high for this purpose. The shafts being made fast to the horses, gives great ease in lifting the rake. We use but one horse in it. We rake across the swaths and make the winrows wide or close as the crop of hay is light or heavy. If your horse walks lively, one rake will winrow as fast as four or five men can put in cock. I do not know how much ground it would go over in a day, but I believe it would rake twenty acres with ease.—We frequently have a man with a hand-rake to follow in case of stumps, or in fence corners, to rake the locks which are missed to the nearest winrow. In putting in the shafts we make the mortices through the head in a direction that will give the points of the teeth a little inclination forward but not so much, as the hay would not then drop readily enough at the winrow, for the horse must not stop when the rake is lifted. We have an expeditious way of drawing the hay into the cock with a horse and rope, or poles; which saves much trouble in securing it and which I will describe in my next letter to you.

Very respectfully,
J. S. SKINNER, Esq.

ABEL SEYMOUR.

THE FARMER.

BALTIMORE, FRIDAY, JUNE 22, 1821.

PRICES CURRENT.

Flour from the wagons, \$4 12½—Whiskey from 27 cents, including barrel—Hay, per ton, \$18 a 20—Straw, do 7 a \$8—Wheat, White, 85 a 85 cents—Red, do. 80 a 81—Corn, 35 a 37, brisk sales—Oats, 23 a 24—Rye, 40—Cod fish, per quintal, wholesale, \$3, retail do. \$4—New England Beans per bushel, \$1 12½—ditto Peas, 75 cents—Plaster in stone \$6 per ton—do, ground, \$1 35 per barrel, 33 cts. per bushel, \$8 per ton—New-Orleans sugar, \$9 to 12 50—Miscellaneous, do. \$9 a 12—American White Lard, \$12 50—Ground do. 13 a 14—Lardseed Oil, 75 cents—Feathers, 40 a 45 cents—Potatoes, per bushel, 62½ a 65 cents—Shad, new, \$6—Herrings, \$2 a \$2 25, declining—Fine Salt, 55 cents per bushel—Ground Alum do 33 a 60—St Ubes, 60—Cadiz, 50 a 55—Turks Island, 75—Live Cattle, \$5 a 5 50—Beef, 8 to 10 cents—Hams, 10 a 12 cents—Middlings, 10 cents—Butter, 25 cents—Pears 50 cents per bushel—Strawberries, per quart, 8 cents—Cherries 10 to 12 cents—Eggs, 12½ cents—Cherese 8 a 10 cents per pound—Tar \$1 30—Turpentine, 1 87 a 2—Pitch 24—Rosin, common, \$1½, bright do. \$3 per barrel—Varnish, 25 cents—Spirits Turpentine, 33 cents per gallon—Cotton, (good Upland) 14 a 15 cents; very dull—Rice 3 a 3½ cents—Ship and Flooring Plank, \$ 5 a 27—shingles, best \$3 a \$7, common, \$3 a 4½ per M.

Tobacco—Calvert County fine, new crop, 2 hds. at \$12 50—Common, unfired, 12 hds. at from 4 to \$6—Anne Arundel, 7 hds. at 4 and \$5—Frederick County, 2 hds. at \$16 50—Anne Arundel, fine yellow, 14 50 a 15 50—Common crop, 4 50 a \$6—Virginia Tobacco, no sales.

Pennsylvania—1 hds. fine yellow sold for \$19.
Kentucky—10 hds. good quality at \$6 50.

STRAW CUTTER.

PERSONS in want of the improved Patent STRAW CUTTER, which received the marked approbation of the Agricultural Society at the late Fair, are respectfully informed, that all orders left with, or directed to Ely Balderson, Smith's Wharf, Baltimore, or the subscriber in Philadelphia, will be strictly attended to.
DERICK BARNARD.

A M E R I C A N F A R M E R.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua i bona norint
"Agricolos." VINO.

VOL. III.

BALTIMORE, FRIDAY, JUNE 29, 1821.

NUM. 14.

AGRICULTURE.

Virginia Husbandry.

Editorial Notes on the Agriculture of certain counties in Virginia, continued from page 66.

Leaving Winchester for Staunton, a kind letter from Judge H. introduced me the same evening to the civilities of Major H. whose spacious mansion of more than 100 feet in length attracts the notice and admiration of the traveller soon after passing Middletown. It serves to adorn a fertile farm of six thousand acres, and is built of a kind of stone which abounds in that country, and which is beautifully adapted to the purposes of building and fencing. On learning the extent of this estate, I could not help reflecting on the vast difference that exists in the rural and social economy, habits and circumstances of sister states; living, nevertheless, in the greatest harmony under the same general government. How wonderful is the political structure which binds together parts apparently so heterogeneous! How much to be admired is the patience and wisdom of the fathers who devised and established it! South of the Chesapeake, it is not uncommon to find from one to ten thousand acres of land occupied by a single proprietor, whereas to the question put by the Massachusetts Agricultural Society to one of the County Societies, "of what quantity of land do the farms in your vicinity generally consist." The answer was, "from fifty to two hundred; generally about one hundred acres." Fifty acres is there considered adequate to the sustenance of a large family, nor will this appear at all incredible to the Southern farmer, when he considers the immensely productive capacity of the earth, if pushed to its greatest yield by the skilful application of labour and manure. In proof of her amazing fruitfulness when properly encouraged to display it, I will here introduce for the notice of the large landholder of the South, one or two examples.

In 1814 the Androssan Farmer's Society offered a silver medal for the best and heaviest crop of turnips in the Parish of Duncaldon, situated in the west of Scotland; and appointed two judges to inspect the different fields, cultivated within the bounds.

They proceeded in the execution of their duty, and in compliance with the requisitions of the Society, by weighing a square rod taken from the average of the fields in different parts—the result of their investigation was, that on one farm, a Scotch acre, which is short of an acre, and a quarter English measure, produced in turnips—

Tons. cwt. lbs.			
Of bulbs, without leaves	76	0	0
Of leaves, by themselves	14	0	0
	90	0	0

Forty bushels of turnips are about equal to a ton; and the quantity per acre, therefore, in facts which appear, on recollection to be worthy bulbs alone, arise to the enormous amount of being stated.

3040 bushels, besides fourteen tons of leaves, of highly nutritive quality. Estimating the use of Plaster of Paris, in connexion with the bulbs at 33 cents per bushel, an acre will fetch upwards of one thousand dollars, a sum sufficient to awaken the utmost agricultural industry. On another farm the same judges found—

Tons. cwt. lbs.			
The bulbs weighed	49	11	17
The leaves	17	5	51
	66	16	68
	7	0	0

On another they found that the

bulbs weighed—	48	7	16
The leaves	20	0	0
	68	7	16

Another impressive example worthy of being mentioned, is that of the Alms House farm in Salem, which consists of about thirty-five acres. In 1816 it is represented to have been in a rough uncultivated state, and in 1818 it produced—

Of Pork killed, 7960 pounds
12 live Pigs sold for 42 dollars
On hand, 57 live Pigs
Corn, 400 bushels
Potatoes, 2250 bushels
Turnips, 900 bushels
3 tons Squashes
50 tons Pumpkins—and all the common summer vegetables for the use of the Alms House.

Let these examples serve to demonstrate what may be done by labour judiciously exercised, and determine the farmer to concentrate his manure and his toils that he may apply them with much more effect on a smaller surface; extending gradually the sphere of his operations as fast only as he can do it with profitable effect. It were useless here to speculate on the moral and political causes which have and will continue to retard the progress of this great state in fertility and population; or to calculate her amazing physical strength when, if ever, a happier order of things shall have drawn her immense resources into fair and full operation.

"Bell Grove" estate opened a wide field for interesting observation, if my health and leisure had allowed me to gather what might have been learned from the ample experience of its industrious and observant owner. But having no minutes of our conversation, all that can be

* It has been estimated that in Massachusetts proper, on an area of 6,000 square miles, there is at this moment a population of half a million, or eighty to the square mile—and that in a general survey, their climate and soil may be considered as of a medium character—an equal denseness of population, would give Virginia upwards of 5,000,000.

Major H. was the first who introduced the use of Plaster of Paris, in connexion with the field culture of clover in the Valley of Shenandoah—and was well satisfied after more than twenty-five years experience, that its effect on clover and other crops, had greatly diminished: as a substitute for Gypsum, which had been for many years almost the sole reliance, he was about to construct kilns for burning lime, to which he had been more immediately induced by the essays of Doctor Black, of Delaware, published in the commencement of the second volume of this work.—The stone is inexhaustible in this valley, and it was matter of much surprise to me, that the farmers residing in it, should not have availed themselves of a resource so obvious, efficacious and plentiful. There prevails, of course, a want of information on the best method of constructing lime kilns—and I should feel particularly indebted to any one, who would enable me to supply my readers with the requisite particulars on this subject. A sketch might easily be made, which, being engraved would clearly represent the internal structure of the kilns, and accompanied with explanations, as to time, quantity and manner, would render the whole subject profitably familiar to the cultivators of a vast extent of country, on the face of which this valuable manure, has hitherto remained unemployed and useless.

The general system pursued by Major H., is a mixed one—under which the cultivation of the staple grains, wheat, rye, oats and corn are combined with the manufacture of some of these into spirit, and with grazing to a large extent—Cattle for grazing, are bought at his gate as they are driven down the valley. In some seasons the droves amount to 12,000 head. The average cost was about \$27 per head. They are generally purchased early in September, fed through the winter on straw and corn fodder—salted—and fattened the next summer and fall, and sometimes sold on the farm, but more generally sent to market and disposed of at an advance, heretofore, of little less than double their first cost.

Oxen are much used in the cart and harrow, by Major H., who is of opinion that they may and ought to be employed to do all the hauling on a farm—His oxen draw wood two miles as fast as horses, and he thinks they are coming into much more general use than formerly. The perverse prejudice against mules, noticed as being prevalent in Jefferson County, exists here with the same force, in defiance of the most unanswerable proofs of their incalculable value—amongst other ridiculous notions, an idea prevails that they do not possess sufficient strength. If this were the case, how does it happen that the practical farmer, in the habit

Of bulbs, without leaves
Of leaves, by themselves

of using mules and witnessing their extraordinary fidelity, hardiness and duration, is never known to offer one for sale or barter? Many are slow to get them, but having used them, they soon learn to appreciate their value. Look at the everlasting mule teams, in the heavy coal wagons, employed by Gen. Ridgely, in his extensive iron manufactories, and in the ploughs at Hampton! What would induce him to substitute horses in their stead? The very expense saved by the use of the former, on so large a scale, is known to constitute a heavy item in the profit-and-loss-account, of these establishments—doubtless they might be made to answer the same end in our mail stage coaches.

The river bottom part of Belle-Grove estate, was estimated to yield 6 barrels of corn per acre—the upland not more than four. The wheat crop did not exceed 12 bushels per acre.—So low was the price of wheat and rye, that both these crops were ground, and either fed to fattening cattle, or distilled. One third of corn, and two-thirds of rye, yield under the process followed by Major H. eleven quarts of spirit to the bushel, while *old* wheat gives three gallons to the bushel—but *new* wheat will “over work” itself, and throws up little more than two gallons. It is the province and the pride of chemistry, to direct these operations to a profitable result, and to detect the causes, when unequal proportions are obtained without any obvious difference, either in the materials or the process of distillation. In fact, we may ask in what department is it not important to be armed with chemical knowledge from the building of a steam ship, to the manufacture of a soap cake?

The staple and average products of *this* farm, have been mentioned because from its conspicuous location—its size and fertility, and the wealth and great respectability of its owner, it is very generally known.

Though heir to a large estate, Major H. was a volunteer in the Revolution, and afterwards intermarried with the sister of our late President Madison—his rooms are ornamented with full length likenesses of the elder Mr. & Mrs. Madison, and their daughter, the late Mrs. H. sister to President Madison, to all of whom a strong family likeness is recognised in the countenance of the latter.

Mrs Madison is represented in a plain rich dress, according to the fashion of that day, with the bible lying open before her—and the old gentleman appears with his elbow resting on a small table, with two volumes—a blue covered pamphlet, and THE RIGHTS OF MAN. That this work should have been thus selected, as the chosen companion of such a man, struck me as a forcible evidence of its popularity in that day—and a most impressive intimation of his reverence for its political principles. It would seem however, as if all gratitude for the author of a work which so powerfully contributed to arouse and to brace the minds of the people, to meet the storms and difficulties of the Revolution, have been eradicated by the imbecile heresies of a petty tract—so true is it, that the “evil that men do, lives after them, the good is oft buried with their bones.”

I must here mention, as more immediately connected with the subject of these notes, that a

amongst other improved implements of modern invention in use on this estate, I observed the cultivators of the best model, much employed for working corn; and, as I apprehend, the most efficient *Threshing Machine*, which has been made or used in this country. These machines are made by Mr. Wright, of Middletown—cost \$400, and are either fixed or portable, and driven by four or six horse power. To inform ourselves and answer the enquiries of a subscriber, we took recent occasion to address the maker of these machines, and here submit his letter, and one from Major H., in some measure explanatory of their powers and advantages.

MIDDLETOWN, June 15, 1821.

SIR,—Yesterday I received your favours of the 11th inst. and the information you have had is correct, respecting the machines for Mr. Yates and Major H.—The latter I had an opportunity of seeing this morning, and requested him to give you his opinion upon the subject, which I have taken the liberty to enclose. Of the permanent or fixed machines, we made four last summer, the two above mentioned and one for Mr. Robert —, near Winchester, and one for Mr. Mattison Hite, Stone Bridge, Frederick County—They have all threshed large crops out, and they have not had one stroke struck at them since we put the horses to them; they shake off the straw by cylindrical rakes, and clean or fan the grain. We make them very strong, with iron gear—they are substantial, will keep in order and last a long time. We threshed at Mr. Yates, I believe, 35 or 37 bushels in one hour, and at Mr. Page's 20 bushels in 31 minutes, but a great deal depends on the grain, viz. its yield, &c. The Portable Machines are made expressly so as to move with the greatest possible facility, as I have generally made them to travel or move about a country, to thresh for hire. We can move them so quick that I would engage to thresh at any two given places in one hour and a half, allowing for the time upon the road; and I never calculate upon threshing less than thirty bushels of wheat per hour—I have exceeded 40 per hour.—In England, three years next winter, I threshed 40 qrs. 320 bushels of oats in between 7 and 8 hours. They are so constructed as to require no taking to pieces, and will work in the barn or field, we have threshed in both places in one day, nor is it necessary that the barn floor be level with the outside—they are driven by gear and universal joints, not by straps.

I can make a Portable Machine to clean or fan,—but it would make them more cumbersome to move—and as they have already movements enough, it would in adding to these, subject them more to disorder. Upon the whole, Sir, I am of the opinion, from theory as well as from extensive practical observation, that the fixed or immoveable machine, will be found to be of the greatest utility—and will give the most lasting satisfaction—the price of either is four hundred dollars—the portable machines, have the necessary apparatus for moving them, except the carriages—two men can fix or unfix one, viz. load or unload.—We have at present, two in hand—the one you heard of—a portable one for a young man that is going to travel with

her, in Jefferson County, and thresh for hire. She will be finished in 10 or 12 days—he will not give her up, as he has a good deal of work engaged at harvest—the other is bespoke, a fixed one for Mr. Win. Wilson, Berkeley county. I would recommend a fixed one to you. Nevertheless I shall be glad to make one to your order. I am acquainted with every sort of Threshing Machine that had been made in England, previous to the summer of 1818; and making them, and other agricultural implements, drills, &c. hath been my business. I feel myself obliged to you for your favour of the draft you enclosed—it is interesting, as I had never seen one. There was a machine to which the horses were attached, as in your draft, in the neighborhood of Yorkshire Wolds, not very far from where I was putting up some. I did not see it, but I believe there was no more made on the plan there about—it was allowed to give credit to the inventor's genius, but not to produce beneficial effects, equivalent to the additional expense. I am not bound to any particular point, how the horses are attached, but ready to adopt what is best; if I understand your draft right, which I think I do, it would answer a good purpose were all the horses of an equal strength, which upon a farm, is very seldom the case—it strikes me that a weak horse would be over poised by his neighbour at the other end of the rope, and consequently he will fall back and his hame hooks or rings will have to rest at the sheeves at the bottom of the yokes, rope or chain—however, that is a matter of no moment. It would be an additional expense, but might render the machines more complete and interesting, and I shall be very glad to fix one for any gentleman upon this plan: but here we have been obliged to furnish them for as little money as we possibly can. I made them generally with chains and sheeves, and sometimes I only put staples and links according to agreement. I can furnish you with a machine to order early in the fall, say, probably, October—will thank you to write as soon as convenient—an order will be thankfully accepted by Your Obedient Servant, GEORGE WRIGHT.

BELLE-GROVE, June 15th, 1821.

DEAR SIR,

Mr. George Wright presented me your letter to him on the subject of his *wheat threshing machines*.

He has constructed for me a portable and a stationary machine, both of which operated beyond my most sanguine expectation. The portable machine separates only the wheat from the straw, whereas the stationary one separates not only the wheat from the straw, but cleans the wheat sufficiently for the purposes of sowing; and will conveniently get out one hundred and fifty bushels of wheat per day. The portable machine, I am convinced would get out four hundred per day provided it be pushed.

I am decidedly of opinion upon moderate sized farms the stationary machine would be the most eligible on account of its greater simplicity, it is more easily kept in repair; and on account of separating the wheat, chaff, and stem, in the same operation.

The price of either of the machines is four hundred dollars. I am, &c. I. H.

THE SHEEP OF PERU

Are exceedingly valuable, and ought to be introduced into the U. STATES OF NORTH AMERICA.

(Concluded from page 95, No. 12.)

THE VICUNA.



The Vicuna is the smallest and most delicate of the Peruvian sheep, but as respects the peculiar fineness and consequent value of its wool, it is perhaps the most important animal of the globe.

The wool of the Vicuna is the softest, finest and most silky of any in the world—it surpasses the fur of the Canadian beaver, the down of the swan, the fleece of the brebis des Calmoks, or of the Syrian Goats. It extends from the shoulder, all along the back, rump and upper flanks, unmixed with hair, in a perfect tuft—the fleece under the belly is generally white, but that of the body in general is red, or a russet brown.

Its ordinary height is about three feet—it is not so majestic an animal as the other species of Peruvian sheep, and the formation of the head is entirely different as will be seen by the annexed plate. These animals seek the loftiest summits of the cordilleras, and rarely descend into the plains in search of food—they sometimes herd with the Huanaco, and occasionally intermix with them as has been proved by the skins which the hunters bring from the mountains, several of which partake of the characteristics of the two species.

They do not eat with the avidity of the Llama and Alpaca, nor interfere with the pursuits of culture—they seem content with the scanty allowance they pick amidst the snow-capped cordilleras, resorting to the most inaccessible places of the mountains, where they enjoy pure air, freedom and solitude.

Until the experiment was made by the Je-

suits which we have before mentioned, it was universally believed that they could not be domesticated, but that experiment not only removed the vulgar error on that point, but proved the facility with which they intermixed with the common sheep, and it was likewise found that the wool of the tame Vicuna which was sent by the Jesuits to Spain, was far superior to any that had ever before been seen. No doubt therefore exists in our mind, that if the Vicuna is now taken in a suckling state, and reared up with care, in a few years they would be completely domesticated, and of course exported from the country with as much ease as the Llama or Alpaca, & indeed if those which have been taken in a wild state, and are now exhibited in England, France and Spain, as objects of curiosity, had been placed among herds of the common European sheep, it is probable they would have intermixed with them.

The usual weight of the Vicuna is from 75 to 100 pounds, but the Jesuits say they improved in size, and reached the weight of 140 and 150 pounds. Another important fact is stated by the Jesuits, that is, the Vicuna became remarkably fond of the green blades of Indian corn, and likewise of pounded corn, potatoes, turnips and fruits of almost every species were offered them and rarely rejected—consequently plenty of congenial subsistence will be found for the Vicuna in every part of our country.

The Llama and Alpaca now in England, prefer green rye and carrots to any other food, therefore every doubt is removed respecting each of the four species of Peruvian sheep find-

ing in the U. S. herbs and grains suitable for their subsistence.

The flesh of the young Vicuna is considered by the Indians next in delicacy to the Llama lambs, and even medicinal virtues are attributed to the Vicuna flesh.

The skin of the Vicuna when manufactured is as soft as morocco, and will be valuable for gloves, &c. and indeed the skins of all the four species of Peruvian sheep are important, as they are known by the natives of Peru, to make more durable leather than the skins of any other animals.

From the preceding observations it is evident; first, that the Llama and Alpaca are domestic animals in Peru, highly valuable as beasts of burthen, and more so, as respects their fleece—and as regards the Vicuna, it is almost unnecessary to dwell on the high importance such an animal would be to our country, more especially when the breed is crossed with our common sheep.

Some idea may be formed of the prolific qualities of this animal, when an intelligent South American has stated that the number of Vicunas which annually perish by the hands of the hunters, exceed 250,000; and besides this, a vast number must be destroyed by the wild beasts of the forest; nevertheless, they are still abundant not only on the lofty mountains of Peru, but in the cordilleras of Chili.

The rude manufactures of the Chilians and Peruvians from the wool of the Alpaca and Vicuna, furnish evidences of what may be accomplished in future when those people shall enjoy the advantages now common throughout the civilized world.

I have seen a shawl manufactured by a Peruvian female, under many disadvantages, from the Vicuna wool, which rivalled, in fineness those of Cachemere, and I likewise saw a cloak in the possession of a priest who assured me that he had worn it for fifteen years, yet it was apparently as good as if it had only been worn a few months.

The preceding remarks on the four classes of Peruvian sheep must be viewed as merely cursory—there are many other particulars respecting this valuable race of quadrupeds, which I flatter myself will be supplied by the intelligent South Americans who frequently visit our country, and likewise by our countrymen who are occasionally visiting Peru and Chili, for purposes of traffic and information.

The American squadron now preparing to visit the Pacific Ocean, will no doubt take out some of our citizens capable of appreciating the value of the hints suggested in this brief memoir, and I flatter myself that our government, and the officers of the squadron will find the subject worthy of their attention, and that before the close of another year we shall see the whole of the four species of Peruvian sheep introduced into our country, and a fair experiment made under the auspices of government and the agricultural societies in the different states of our union.

In a future number of the American Farmer, I shall offer some further suggestions on the domestication of the Vicuna, and the crossing of the respective breeds of the Peruvian sheep,

and likewise treat of the various kinds of wool imported from South America, showing their importance to our manufacturers, and to which will be added a few remarks on the dyes used by the Indians, many of which are unknown in Europe, and I think will be found of great importance to our manufacturing interests.

WM. DAVID ROBINSON.

New-York, May, 1821.

ON THE FORM OF ANIMALS,

BY HENRY CLINE, Esq. SURGEON.

From the publications of the Board of Agriculture, England, Vol. IV.

The form of domestic animals has been greatly improved by selecting with much care, the best formed for breeding—but the theory of improvement has not been so well understood, that rules could be laid down for directing the practice. There is one point particularly respecting which the opinions of breeders have much varied, which is, whether crossing the breed be essential to improvement.

It is the intention of this communication to ascertain in what instances crossing is proper, and in what prejudicial; and the principles upon which the propriety of it depends.

It has been generally supposed that the breed of animals is improved by the largest males. This opinion has done considerable mischief, and would have done more injury if it had not been counteracted by the desire of selecting animals of the best form and proportions, which are rarely to be met with, in those of the largest size.

Experience has proved that crossing has only succeeded in an eminent degree, in those instances in which the females were larger than in the usual proportion of females to males; and that it has generally failed when the males were disproportionally large.

The external form of domestic animals has been much studied, and the proportions are well ascertained. But the external form is an indication only of internal structure. The principles of improving it must therefore be founded on the knowledge of the structure and use of internal parts.

The lungs are of the first importance. It is on their size and soundness that the health of an animal principally depends. The power of converting food into nourishment, is in proportion to their size. An animal with large lungs, is capable of converting a given quantity of food into more nourishment than one with smaller lungs, and therefore has a greater aptitude to fatten.

The Chest.

The external indication of the size of the lungs is the form and size of the chest; the form of which should have the figure of a cone, having its apex situated between the shoulders, and its base towards the loins.

The capacity of the chest depends upon its form more than on the extent of its circumference; for, where the girth is equal in two animals, one may have much larger lungs than the other. A deep chest therefore is not capacious unless it is proportionally broad.

The Pelvis.

The pelvis is the cavity formed by the junction of the haunch bones with the bones of the rump. It is essential that this cavity should be large in the female, that she may be enabled to bring forth her young with less difficulty. When this cavity is small, the life of the mother and of her offspring is endangered.

The size of the pelvis is chiefly indicated by the width of the hips and the breadth of the *twist*, which is the space between the thighs.

The breadth of the loins is always in proportion to that of the chest and pelvis.

The Head.

The head should be small, by which the birth is

facilitated. Its smallness affords other advantages, and generally indicates that the animal is of a good breed.

Horns are useless to domestic animals. It is not difficult to breed animals without them. The breeders of horned cattle and horned sheep, sustain a loss more extensive than they may conceive; for it is not the horns alone, but also much more bone in the skulls of such animals to support their horns; besides there is an additional quantity of ligament and muscle in the neck which is of small value.

The skull of a ram with its horns, weighed five times more than another skull which was hornless. Both these skulls were taken from sheep of the same age, each being four years old. The great difference in weight depended chiefly on the horns; for the lower jaws were nearly equal, one weighing seven ounces, and the other six ounces and three quarters; which proves that the natural size of the head was nearly the same in both, independent of the horns and the thickness of the bone which supports them.

In a horned animal, the skull is extremely thick. In a hornless animal it is much thinner; especially in that part where the horns usually grow.

To those who have not reflected on the subject, it may appear of little consequence whether sheep and cattle have horns—but on a very moderate calculation it will be found, that the loss in farming stock, and also in the diminution of animal food, is very considerable, from the production of horns and their appendages. A mode of breeding which would prevent the production of these, would afford a considerable profit in an increase of meat and wool, and other valuable parts.

The length of the neck should be proportioned to the height of the animal, that it may collect its food with ease.

The Muscles.

The muscles and tendons, which are their appendages, should be large; by which an animal is enabled to travel with greater facility.

The Bones.

The strength of an animal does not depend upon the size of the bones, but on that of the muscles—Many animals with large bones are weak, their muscles being small. Animals that were imperfectly nourished during growth, have their bones disproportionally large. If such deficiency of nourishment is originated from a constitutional defect, which is the most frequent cause, they remain weak during life. Large bones, therefore, generally indicate an imperfection in the organs of nutrition.

On the improvement of Form.

To obtain the most approved form, two modes of breeding have been practiced—one, by the selection of individuals of the same family—called *breeding in-and-in*. The other by selecting males and females from different varieties of the same species; which is called *crossing the breed*.

When a particular variety approaches perfection in form, breeding in-and-in may be the better practice—especially for those not well acquainted with the principles upon which improvement depends.

When the male is much larger than the female, the offspring is generally of an imperfect form. If the male be proportionally larger, the offspring is of an improved form. For instance, if a well formed large ram be put to ewes proportionally smaller, the lambs will not be so well shaped as their parents; but if a small ram be put to larger ewes, the lambs will be of an improved form.

The proper method of improving the form of animals, consists in selecting a well formed female, proportionally larger than the male. The improvement depends on this principle, that the power of the female to supply her offspring with nourishment is in proportion to her size, and to the power of nourishment herself from the excellence of her constitution.

The size of the foetus is generally in proportion to that of the male parent; and therefore, when the female parent is disproportionally small, the quantity of nourishment is deficient, and her offspring has all the disproportionations of a starveling. But when the female, from her size and good constitution, is more

than adequate to the nourishment of a foetus of a smaller male than herself, the growth must be proportionally greater. The larger female has also a greater quantity of milk, and her offspring is more abundantly supplied with nourishment after birth.

To produce the most perfect formed animal, abundant nourishment is necessary from the earliest period of its existence, until its growth is complete.

It has been observed, in the beginning of this paper, that the power to prepare the greatest quantity of nourishment, from a given quantity of food, depends principally upon the magnitude of the lungs, to which the organs of digestion are subservient.

To obtain animals with large lungs, crossing is the most expeditious method; because well formed females may be selected from a variety of a large size, to be put to a well formed male of a variety that is rather smaller.

By such a method of crossing, the lungs and heart become proportionally larger, in consequence of a peculiarity in the circulation of the foetus, which causes a larger proportion of the blood, under such circumstances, to be distributed to the lungs than to the other parts of the body; and as the shape and size of the chest, depend upon that of the lungs, hence arises the remarkably large chest, which is produced by crossing with females that are larger than the males.

The practice according to this principle of improvement, however, ought to be limited; for, it may be carried to such an extent, that the bulk of the body might be so disproportioned to the size of the limbs as to prevent the animal from moving with sufficient facility.

In animals, where activity is required, this practice should not be extended so far as in those which are required for the food of man.

On the Character of Animals.

By character in animals is here meant, those external appearances by which the varieties of the same species are distinguished.

The characters of both parents are observed in their offspring; but that of the male more frequently predominates. This may be illustrated in the breeding of horned animals; among which there are many varieties of sheep, and some of cattle, that are hornless.

If a hornless ram be put to a horned ewe, almost all the lambs will be hornless; partaking of the character of the male rather than of the female parent.

In some counties, as Norfolk, Wiltshire, and Dorsetshire, most of the sheep have horns. In Norfolk the horns may be got rid off by crossing with the tyeland rams; which would also improve the form of the chest and the quality of the wool. In Wiltshire and Dorsetshire, the same improvements might be made by crossing the sheep with South Down rams.

An offspring without horns might be obtained from the Devonshire cattle, by crossing with hornless bulls of the Galloway breed; which would also improve the form of the chest, in which, the Devonshire cattle are often deficient.

Examples of the good effects of crossing the Breeds.

The great improvement of the breed of horses in England arose from crossing with those diminutive Stallions, Barbs, and Arabians; and the introduction of Flanders Mares into this country was the source of improvement in the breed of cart horses.

The form of the swine has also been greatly improved, by crossing with the small Chinese boar.

Examples of the bad effects of crossing the breed.

When it became the fashion in London to drive large bay horses the Farmers in Yorkshire put their mares to much larger stallions than usual, and thus, did infinite mischief to their breed, by producing a race of small chested, long legged, large boned worthless animals.

A similar project was adopted in Normandy, to enlarge the breed of horses there by the use of stallions from Holstein; and, in consequence, the best breed of horses in France would have been spoiled, had not the farmers discovered their mistake in time, by ob-

serving the offspring much inferior in form, to that of the native stallions.

Some graziers in the Island of Sheppey, conceived that they could improve their sheep by large Lincolnshire rams, the produce of which, however, was much inferior in the shape of the carcase, and the quality of the wool; and their flocks were greatly injured by this attempt to improve them.

Attempts to improve the native animals of a country, by any plan of crossing, should be made with the greatest caution; for, by a mistaken practice extensively pursued, irreparable injury may be done.

In any country where a particular race of animals has continued for centuries, it may be presumed that their constitution is adapted to the food and climate.

The pliancy of the animal economy is such, as that an animal will gradually accommodate itself to great vicissitudes in climate and alterations in food; and by degrees undergo great changes in constitution; but these changes can be affected only by degrees, and may often require a greater number of successive generations for their accomplishment.

It may be proper to improve the form of a native race, but at the same time it may be very judicious to attempt to enlarge their size.

The size of animals is commonly adapted to the soil which they inhabit; where produce is nutritive and abundant, the animals are large, having grown proportionally to the quantity of food which for generations, they have been accustomed to obtain. Where the produce is scanty, the animals are small, being proportioned to the quantity of food which they were able to procure. Of these contrasts the sheep of Lincolnshire and of Wales are examples. The sheep of Lincolnshire would starve on the mountains of Wales.

Crossing the breed of animals may be attended with bad effects in various ways; and that, even when adopted in the beginning on a good principle; for instance, suppose some larger ewes than those of the native breed were taken to the mountains of Wales and put to the rams of that country; if these foreign ewes were fed in proportion to their size, their lambs would be of an improved form & larger in size than the native animals; but the males produced by this cross, though of a good form, would be disproportionate in size to the native ewes; and therefore, if permitted to mix with them, would be productive of a standing ill-formed progeny. Thus a cross which, at first, was an improvement, would, by giving occasion to a contrary cross, ultimately prejudice the breed.

The general mistake in crossing has arisen from an attempt to increase the size of a native race of animals; being a fruitless effort to counteract the laws of nature.

The Arabian horses, are, in general, the most perfect in the world; which probably has arisen from great care in selection, and also from being unmixed with any variety of the same species, the males have therefore never been disproportioned in size to the females.

The native horses of India are small, but well proportioned, and good of their kind. With the intention of increasing their size, the India company have adopted a plan of sending large stallions to India. If these stallions should be extensively used, a disproportioned race must be the result, and a valuable breed of horses be irretrievably spoiled.

From theory, from practice, and from extensive observation, which is more to be depended upon than either, it is reasonable to form this conclusion that it is wrong to enlarge a native breed of animals; for in proportion to their increase of size, they become worse in form, less hardy, and more liable to disease.

From the Massachusetts Agricultural Journal.

ESSAYS ON FLAX HUSBANDRY—By S. W. Pomeroy, Esq. first Vice-President of the Massachusetts Society for promoting agriculture.

The great surplus and depressed prices of our chief agricultural products, render it necessary for the farmer

to seek others upon which he may calculate for more profitable returns, or at least, such as will constitute a division of his risk; with this view flax may be presented as an item deserving particular consideration.

For twenty years preceding 1816, the annual export of flax seed from the United States, averaged about 250 thousand bushels! When they were British colonies, with one fifth of the present population, and a territory under cultivation probably much less in proportion, there was exported in one year (1770) upwards of 312,000 bushels. (1) It is very obvious, that the causes of this decrease, so disproportionate to the increase of all other products of the soil, may be attributed to the introduction of vast floods of cotton fabrics and yarns, at prices, (nominally) very low, and the unexampled demand for breadstuffs and other food, during the period referred to. The effect has been to place flax farming so far in the background, as scarcely to attract the attention of agricultural societies, when engaged in promoting improved methods of cultivation for other crops; and also, it is feared, to curtail household manufactures, the extension of which, it will not be denied, is eminently conducive to the prosperity of an agricultural people.

For although prudent farmers have usually a small patch, the object has been so inconsiderable as not to demand any particular care in its management, and a tolerable crop, which, in Europe is considered as certain, as any they raise, is supposed in many districts to be the effect of chance, or, as it is termed, good luck. We will not pretend that flax was at any period in this country estimated as a profitable, though formerly a necessary crop. But it is presumed, such has been the acquisition of knowledge, and improvements in agriculture, and especially those branches of mechanical science connected with it, that an entire new view may be taken of flax husbandry—that it may be made to enter into the agricultural system of the country much more extensively than heretofore, and possibly be ranked as a considerable, and not unprofitable staple. With these impressions I have devoted some attention to the subject, and shall submit such information as I have been enabled to collect from various authentic sources; together with some remarks and intimations, which, should they throw no light on the question, may promote enquiry, and induce others, possessing better qualifications and more experience, to pursue the investigation.

My attention was drawn to the present object, in consequence of viewing the manufactories of sail cloth, at Paterson, near the Falls of the Passaic in New-Jersey, the last autumn: where I was informed that 6,000 bolts of week had been made for the Navy, the year preceding, of a quality superior to what I then experienced in nautical affairs, to be worth, by service, from 30 to 50 per cent. more than canvas imported from Russia! Indeed the respectable and liberal proprietors of those establishments are entitled to great credit for the perfection of this article; it is presumed they have conformed to the particular stipulations of their contracts with the commissioners of the navy board, who in this instance, as in others, are conspicuous for their attention to those minute details so necessary to insure solidity and permanence to what pertains to that department. But the political economists, and perhaps some farmers of the United States, will be surprised when told, that "the flax, from which this sail cloth was fabricated, was imported from Ireland and the Baltic; that if a sufficient quantity of native growth, could have been procured (which was doubted) it does not possess sufficient strength to make such canvas, as the navy board would, or ought to have been satisfied with." The question occurs, what is the cause of this inferiority? It will not be pretended, we believe, that there is any inherent defect in the soil, or that the climate is uncongenial to its perfection. On the other hand it will be admitted that there is nothing so peculiarly favourable, as to require less attention and care in the

cultivation, than is bestowed in those countries in Europe, where it forms an important agricultural staple, and where similar management would unquestionably produce the same effects; for, however plausible the prevalent opinion may be, that the inferiority of American flax is owing solely to the injudicious preparation by dew retting, and we will grant it is one very prominent cause, still there are others, which will be noticed in the sequel, that may be considered as having a very powerful influence in deteriorating the quality, as well as lessening the product.

The common flax plant (*Linum Usitatissimum*) possesses habits more peculiar than any other within the range of our cultivation—and it may be useful in order to reconcile the farmer and to impress on his mind the importance of attending to those habits, to trace this plant to its native soil, or rather to the country where they were acquired by cultivation, for a vast series of ages—for it is not improbable that, like the small grain, its present appearance is essentially different from that in its indigenous state; but to which it seems to be returning, in some parts of our country, by gradations less imperceptible, than it may have originally advanced.

Linum is mentioned at a very early period of sacred history as the production only of Egypt. The most ancient and credible author of profane history (2) speaks of its remote antiquity being peculiar to that country—and those writers, who treat of the fabulous ages, ascribe the culture of flax and invention of spinning and weaving to Isis, a queen of Egypt; the Ceres of the Greeks, to whom they attribute the discovery of bread corn. But if there was any question on this point, the habits of the flax plant denote its most natural soil to have been on the margin of a river annually inundated, subsiding exactly at the period of seed time, leaving an entire new soil, or, by forming new combinations, completely renovating the old, which soon becoming dry, mellow and friable at top; retaining, or having conducted by art, sufficient moisture at bottom, aided by copious dews to ensure its maturity, but never any rain or storms to beat it down! where could I have found such a location but on the banks of the Nile? (3) It has degenerated when transplanted to every other country, probably in proportion to the want of care and attention to assimilate the soil, and gratify that impatient change, to which it has been so long habituated. Hence it is that flax owes the reputation of being the most exhausting of all crops. Let us enquire to what extent it may be well founded.

Sir Humphrey Davy's remarks, in his "8th lecture on agricultural chemistry," that "it is proved by facts stated in his 7th lecture, that plants require different materials from the soil, and that particular vegetables require peculiar principles to be supplied to the land in which they grow." And "as a most remarkable instance of the power of vegetables to exhaust the soil of certain principles," he states "that mushrooms are said never to rise in two successive seasons on the same spot." He might have cited flax, as another instance not less remarkable! These facts are further substantiated by the effect produced on the soil, where old fruit trees have grown, in retarding the progress of young trees of the same family or species; for instance, a young cherry tree, planted on the spot from which an old one had been dug up, will remain nearly stationary for a length of time with the highest cultivation; remove it to the spot that has been occupied by an old pear tree, and plant a young pear tree in its place, and both will immediately become as flourishing as if no tree had ever been produced on the land. Of this fact I have experienced the most complete demonstration repeatedly within the last twenty years. It is, moreover, well known to most farmers, that an apple orchard will not succeed on land that had before been occupied by one, but that cherry or peach trees will grow vigorously on such land.

(2) Herodotus, Euterpe. chap. 37. 105.

(3) The inundation of the Nile begins to decrease about the 20th September. The seeds are sown and the crops perfected while the sun is in the southern tropic.

(1) Pitkin's Statistical View.

From these premises very potent arguments might be drawn in favour of a regular rotation of crops and against summer fallows.—They are here introduced to shew, that although a single crop of Flax will so exhaust the soil of "certain principles," that a repetition cannot take place with any prospect of success, even with large quantities of manure, under a lapse of from four to eight years, according as those "materials" necessary to its growth may be more or less retained, or supplied, yet it does not follow that the soil is exhausted of the food necessary to promote the luxuriant growth of other plants! The soundness of this position is supported by the usual practice in Europe and this country, of sowing clover and grass seeds with Flax, which is considered not more exhausting, and a better protecting crop than Oats or Barley; and it is probable that the result may be similar if we extend the enquiry, but it is unimportant at present, for good husbandry will ever dictate that clover or grass should be the next course in rotation to Flax.

We necessarily look to Europe for instructions in Flax husbandry, and first turn to Ireland, where it was introduced in 1696, under the patronage of William the third, eight years after he left Holland to wield the British scepter. "An able and impartial enquiry (4) computes that in less than forty years from that period, the home consumption and exportation of Lincn, amounted annually to one million sterling," which, if we allow for the difference in the value of money, may be equal to ten millions of dollars at present, "and this from thirty thousand acres of land; employing, in raising and manufacture, one hundred and seventy thousand persons." When this trade was in its infancy, the Dublin society was instituted for its promotion, and some years after published several tracts on the culture of Flax; from which, and from the tour of Arthur Young in that country, we derive some important facts, yet upon the whole, less information is obtained that is applicable to the management in this country, than we were led to expect, owing to the minute subdivision of the land among the cultivators. (A cotter seldom occupying more than a quarter of an acre) the very great difference of climate, and, above all, the uncommon fertility of the soil, which Sir H. Davy, in his 4th lecture, attributes to the proximity of the rocky strata to the soil, in that moist climate. But Mr. Curwen, long a distinguished statesman in the British parliament, and who, as an agriculturist, ranks with Mr. Coke and Sir John Sinclair, made a tour throughout Ireland in 1813 "with views directed to its agriculture and rural population," and to investigate the cause of the misery and degradation of that noble spirited, generous, but mismanaged people, remarks, that "he does not think the causes assigned by Sir H. Davy for this superior fertility are at all satisfactory, that those demerits, which in England distinguish lands that are exhausted, are in Ireland almost unknown; the verdure is everlasting and luxuriant, arising, as he should suppose, from some inherent quality of the soil, which keeps it in a proper state to admit the salutary influences of the atmosphere; that the richness of the surface resists all the efforts of man to sterilize it," and he gives the Irish credit for being very persevering in their endeavours for that purpose. (5) Notwithstanding this extreme fertility, Mr. Curwen says that the Flaxseed raised in Ireland was supposed to produce inferior plants, and that the Linen board of the Dublin society took charge of the importation of foreign Flaxseed for the supply of those who could not otherwise obtain it. This information relates to one of the most important features in flax farming, CHANGE OF SEED, which will be considered in our next essay.

(4) See Campbell's Political Survey.

(5) Observations on the state of Ireland, by J. C. Curwen, Esq. M. P. London, 1818.

TO DESTROY BUGS ON MELONS.

Seeing in your last number of the Farmer, remarks on Melons, &c. induces me to state my mode of pro-

tecting them and Cucumber vines, from the depredations of the striped back yellow bug: Take a quantity of hen dung, soak and dilute it in water, until it is of the consistency of white wash or paint, and with a brush, sprinkle the vines and earth around the stems with it; and the bugs will decamp—it is also the best manure that can be applied to them.

T. MASSEY.

Rose Ville, Del, June 20, 1821.

For the American Farmer.

ON THE MANAGEMENT OF INDIAN CORN.

In reply to Mr. McMechen and "Tuskarora."

A communication from Mr. "McMechen" of Moorefield, appeared in the Farmer of the 6th inst. in answer to which I will only make a few remarks. We appear to coincide in opinion as regards the practicability and utility of the most important point; the saving of corn, stalk and all. There is a little difference in the particular manner in which, we think, this should be done. He advises that a few rows at a time be cut and stacked immediately, and that the piles be afterwards enlarged by as many intermediate rows that should have been left standing till the whole field be gone over. It is highly probable that this plan, upon the whole may be preferable to the one recommended by myself. I still think, however, that in one respect it is inferior. By giving the corn, as it is cut, a little sun; it appears to me that the operation may be performed much earlier in the season than it otherwise could be without injury. I may have allowed rather too long a time for it to remain on the ground. A day might probably do. Last year, the whole of my corn crop, amounting to one hundred acres, was secured in the manner recommended. We commenced cutting and stacking on the 16th of September, and finished before the last of the month. Some of it was put up in large stacks as soon as cut, and a part remained on the ground from one to three days. The corn when husked proved to be all equally as sound as if it had remained on the stalk till November. In the stalks and blades I also found little perceptible difference. But the spring of 1820, was uncommonly forward, and the year for corn, a good one. Should the weather, at the time of cutting, be damp or threatening, I cheerfully admit that the plan of Mr. M. has many advantages over mine. A very important point is to get the corn secured in the field, as early in the year as possible, to make room for the wheat crop. The last of September will do, but the middle would be better, as many farmers commence sowing wheat as early as that date, and some even as soon as the first of the month. When tops are cut and left on the ground a day or two dry, we do not find, without they should have been exposed to rain, that any material injury is sustained. For his efforts in "furtherance" of my plan, about which it seems I am yet to have some trouble, Mr. M. has my sincere thanks. It was in his section of the country, that the plan of cutting off corn, first originated—it is now promulgated to the American public, with the hope that it will not be so sceptical of the merits of a system, as to suppose merely because it is new, that it must be a visionary innovation on the interest of Agriculture.

A writer over the signature of "Tuskarora" requires some attention. I am sorry that my suggestions do not meet with his approbation. I should be unwilling, at this time, to commence an Agricultural controversy with any one, and much more with a puissant name-sake of an Indian Chief. He "knows, or at least thinks it highly probable, that the culture of corn, will be better understood and practiced where it has been cultivated as a staple production both for domestic consumption, and for market, than where it has not been used for both purposes"—and from this opinion, draws the conclusion, that the tide-water counties of Virginia, know more about the management of this crop, than they

possibly can, in Fauquier or any of the back counties—and that his experience of "thirty years" with that of many others, has clearly proved that the old way is the best. Although at first sight these arguments appear plausible enough, a very little reflection will convince us of the fallacy. When the soil is so congenial to the growth of any crop, that it may be raised with little difficulty, little attention is invariably paid to improvements in its culture. A moderate crop attained with a considerable degree of certainty by ordinary means, is sufficient to supply the wants and satisfy the wishes of the care-less cultivator. It is rather in a climate where nature has been less lavish of her favours, that we should expect beneficial improvements in the science of Agriculture. When the product of the earth is barely sufficient, with the most rigid economy, to support human existence, the ingenuity of man is whetted, by "necessity the mother of invention", to overcome such obstacles, as by more fortunate individuals, would be deemed absolutely insurmountable. There appears then, to be no sort of necessity for our taking the simple opinions of a Gloucester Corn Planter, as orthodox on the culture of that Plant, merely because he lives in a country where corn is the "staple", and has had the benefit of "30 years" experience. Could our mortal peregrinations be extended to such a limit, he might, possibly, have been at the same business for 50 thousand years, and after all not have known, one word more about the matter, than did the naked subjects of his merciless Prototype. I am far from supposing, however, that this is, or would really be, the case with our modern "Tuskarora", and we have great satisfaction in acknowledging and hoping that he may be as learned, and as experienced as the absence of error can make him. I am supposed to be a "young gentleman who write more for my own amusement, than for the information of others" and nearly my whole system denounced as the crude theory of a distempered brain, merely because I had the candour to acknowledge that I never had the advantage of "thirty years" experience, which in the opinion of "Tuskarora" appears to be the "sine qua non" of an Agricultural investigator. Some of the greatest benefactors of tillage, of whom we have any information, were men not conversant with its practical details. The great Roman Poet, whose writings have been the admiration of every age, from his own to the present, was at most a practical cultivator on a very limited scale—And even "Tuskarora" will not deny that Virgil did more good to the agriculture of the Roman Republic, than could have resulted from the united efforts of ten thousand clod-pates. I have not the vanity to suppose, that my own name can, with propriety even be mentioned on the same page, with that of such a celebrated Bard: the fact has been adverted to, only to show that "30 years" of experience may, in some cases, be dispensed with, without the hazard of being always led a wild goose chase by the undigested speculations of a "novice." This much I have said on the admitted supposition, that I have no experience whatever. But for the edification of my generous opponent, I will state that although on the sunny "side of sixty" I am no chicken still My whole attention has been paid for 7 years past to that profession on which I have dared to write, and by which I receive my only support. Under the impression that the "conduct of men should be measured by their actions and not by their professions," I did not suppose it would be considered of much importance, whether I had been a farmer for seven years, or for 30. "Tuskarora" agrees with me, that to plough a poor soil from seven to twelve inches deep, would be beneficial, but is at a loss to know "how to make this 12 inch turn over." In laying down the requisite depth of good cultivation, it was not necessary to confine myself to what was commonly done, for in that case I might have said 3 inches; all that was deemed important, was to embrace what may be termed the *ultra* limitum of American Ploughing. Though I have never seen a large field ploughed 12 inches deep, I have several times seen small spots ploughed to that, or very nearly that depth even in this neighbourhood. If "Tuskarora's" county men,

would be rather more liberal in the distribution of their sweet snuffling corn blades to their plough teams, to the no small discomfiture of that useless animal, the race horse, he might probably be convinced that the hope of descending 12 inches into the earth is not altogether so forlorn as he seems to imagine. He cannot tell what "abstracted grass" can mean, without it be dead grass. He has been guilty of some unfairness in quoting my words, so as to make out a different signification from what was intended: My language was this; "the growth of grass, does not in the abstract injure that of corn"—The word "abstract" is here placed between the auxiliary and the governing verb "injure", and was intended in some measure to qualify the sense conveyed by that verb. The growth of grass might injure that of corn in three different ways; by drawing that nutriment for its own support, which the crop should have—by shading the corn, and by occupying the ground which might be absolutely necessary for the corn-roots. In speaking of that supposed injury for the corn might receive from a monopoly of its food, I used the word "abstract" to mark the difference between that and the other two, and which conveyed the same idea, as if I had said "grass does not, simply by its growth, injure that of corn" I may have been deficient in syntactical precision, but the Essays in question were not designed for the frivolous exercise of critical sagacity. The invincibility of a patriotic army of grenadiers, seems to excite the risibility of a Gloucester Corn Planter. It is admitted, that even a host of that sort may have been overcome by their "equals in courage, their superiors in number." But in narrating the actions or prowess of mankind, we always speak relatively. An army of patriotic grenadiers, is much more likely to be invincible, than any other body of men, not superior in number. I can see no impropriety in comparing what has been very justly termed the "prince of plants" to the stubborn courage of a gigantic soldier. A languid attempt at witicism is made on the expression, that "Indian corn is the most vigorous plant in the natural world": Without wandering from our globe, I should have supposed a gentleman who writes as well as "Tuskarora," might at least have heard of the natural, the moral, the scientific and political worlds. "After it shall have become knee-high, no wet destroys—no drought kills—no grass can injure it": Taking the two first of these expressions in a literal sense, I am certainly correct, for barring an extraordinary dispensation of supernatural power, I never heard of a rain so heavy since the time of miracles, as completely to destroy corn knee-high, or a drought so severe as to entirely kill it. It is true, that were the Rappahannock to flow out of its channel, on either of its banks, the corn would be drowned, and many of the inhabitants in the bargain. A rain of forty days and forty nights, would be attended with consequences fully as direful. Were the sun to advance out of his resting place, fifty millions of miles nearer this earth, than he remains at present, I cannot doubt but the corn would be all burnt up. We have the consolation to know, however, that such occurrences, though barely possible, are not very probable. In the ordinary course of the season, by an improved cultivation, I contend that we might counteract, at least in a greater measure than we do at present, those little whimsicalities of nature, which we every year meet with, and which as prudent men, we should occasionally expect and endeavour to render harmless. "No grass can injure it." In one of the Essays on "Rural Economy," from which this sentence is transcribed, I endeavoured to prove that corn sustained no injury from the mere growth of grass, admitting at the same time, that a grassy corn field was generally a sorry one, but contending that what was only the effect of bad cultivation—the growth of grass, was inconsiderately taken for the cause of the indifferent crop, which was wholly and solely the want of proper cultivation. When corn becomes knee-high, I presume it is beyond the reach of injury from the shade of grass; if then the correctness of my first postulate be admitted, I think I can with great confidence, affirm that "no grass can

injure it." When this position shall have been shaken by the arguments of "Tuskarora," or any one else, it will be time enough for me to reply to them. A Gloucester Corn Planter, cannot conceive how it is possible that my mouldy corn stalks can be superior in "quantity and quality" to his finely cured blades and tops—and I will readily allow that no one else can, admitting his statement to be correct, that the corn is "put up into small, shively cocks," merely to rot. Upon what authority he states this fact I know not. Had he read the letter of Mr. McMechen, he would have seen that there are in the world, besides myself, other strenuous advocates of the system, against which he has so earnestly invoked the maledictions of society, and who, more fortunate than myself, may by an experience of 30 years, possess the requisite passport to credibility. By the statement of the same gentleman, it will appear that corn is secured in that way, not merely as food for stock, but as food for man, and that it is as free from "mould or any other unpleasant smell," as if put in the most airy corn house; and furthermore, that it is more secure from the depredations of rats and mice, than when housed in the common way. If corn, when cut, be nicely put up in piles or cocks, which both admit air and turn rain, I can divine no cause why it should be so much inferior either in "fine smell or nutritive power," to the favourite blades of a Gloucester Corn Planter. If I rightly remember, the simple stalk is considered of more importance by Arator, than all the balance of the plant, with the exception of the grain. It was on this part of the plant, that I relied for the superior food, both in "quantity and quality" and not to the "same parts of the corn plant," which alone is thought worth saving in the lower country. The slightest observation will convince any one, that the stalk contains more saccharine or nutritious matter, than the blades, husk and cob put together, and consequently must be, for stock, a stronger and better food than a comparatively small quantity of blades, which admitting them to be twice as fragrant as they really are, I still contend are not worth the trouble of gathering. In speaking of the manner of curing fodder, my Friend appears at least to doubt the fact of my ever having seen the blades put loose between the stalks to dry, and unblushingly affirms that he never has "witnessed a process similar to the one described." The man really is to be pitied, who with the advantage of an age of experience, appears not even to understand the details of his own system!—with a far less debt to the stock of time, I have lived long enough to have seen and practised both plans, and long enough to be well convinced by experience, that the bundling of blades, immediately when pulled, is fraught with bad consequences. The main object of the farmer is to get the blades sufficiently cured for the cock or stack, as soon after they are pulled as possible. When they are placed loose between the stalks, without the smallest danger of being blown away, they will cure in half the time, as when tied up immediately. Indeed when they are secured in the way which he prefers, it is very difficult to cure them thoroughly at all. Nothing is more common than to see blades completely spoiled in the stack by fermentation. For the further information of a Gloucester Corn Planter, who seems to be as spasmodically affected by the bare word Theory, as a mad dog is by the sight of water, I beg leave to state that the method of raising corn, as recommended by myself, if we except the general use of the coulter, is precisely the same that is now practised by the best farmers, in a great part of Fauquier and Loudoun Counties: where notwithstanding the less favourable advantages of soil and climate, they frequently make as much per acre, as is made on the fine bottoms of the Rappahannock, or even the Black Swamp of Gloucester. The plan of cutting and stacking corn has been in successful operation on the South Branch of the Potomac, for 20 or 30 years. Some of the very worst cultivators which appear in this country, are Tobacco Planters, with the experience of half a century, metamorphosed by necessity into Farmers. Too closely wedded to old habits to allow the intro-

duction of modern improvements, they appear to be doomed during the remainder of their lives, to turn the same barren clod, with little more success, than had the unfortunate Sisyphus with his intractable rock. Whether it be more pleasant to travel on the "King's Highway," or by the uncertain indications of an Indian trail, I leave to the decision of those most interested.—To write for a newspaper, may, to a gentleman gifted with the oily fluency of "Tuskarora," be a source of pleasure; but to be engaged continually with the irksome task of instructing others, I can positively assert affords no amusement to me; and as a proof of my sincerity, should the courtesy of my generous Friend permit it, I shall now descend from the giddy height of public observation, to the more agreeable pursuit of domestic concerns.

R. B. BUCKNER.

Vint Hill, Fauquier County, Va. }
22d May, 1821.

For the American Farmer.

OYSTER SHELLS,

ANSWER TO W. H.

Fresh oyster shells when ground, become valuable manure—they convey not only animal, saline and calcareous matter to the land, but mechanically separate its parts. In England and Pennsylvania, they are frequently so applied. It is not more absurd to prescribe the same nostrum for all diseases, than to apply the same manure to every soil. A skilful farmer consults the constitution of his land, ascertains its constituent parts and endeavours to supply its deficiencies, by artificial means. If it require lime in its caustic state, he will burn marine shells, and thus obtain one of the most pure, and active limps which nature can afford, not only without sand, but free from all deleterious matter with which stone lime is frequently combined. It is obvious that if the shells shall have been long exposed to the atmosphere, the animal and saline particles will have escaped, leaving nothing but calcareous matter to operate upon the ground—shells which have been so exposed are more cheaply reduced to powder by Fire, than by any other means; and for the purposes of caustic lime, they should be selected always. It has been found that recent shells, or those which have been roasted before exposure in the kiln, become black, and so difficult to be slaked, that they remain beneath the soil, unaltered for a season and often more. It is probable that the animal matter distributed throughout their pores, when exposed to sudden heat becomes carbonized, and thus excludes the moisture necessary to reduce them. The chemical agency of lime in exciting fertility has been so fully explained by Sir Humphrey Davy, its sensible effects upon soils are now so completely established by practical men, that there is scarcely a farmer who is ignorant of its excellence, yet half of the value is generally lost through inattention to the time and mode of its application.

CURVEN.

Philadelphia County, June 19, 1821.

TO DRAW HAY TO STACKS EXPEDITIOUSLY.

Hardy County, Virginia, Morefield, }
February, 1821.

Str—Our mode, on the South Branch of the Potomac, of drawing hay when in the cock, to the stack is so simple, that I could as soon put it in operation as describe it. We rake all with the horse rake as before stated, and we draw the cocks also by horse and in the following manner: A rope, chain, or grape vine will do very well; but the best way is to use two poles about ten or twelve feet long, about as thick at the but end as a man's arm—the poles cut off at the root so as to have a nub at the end, to hold a small rope to confine the two butts, to within eighteen or twenty inches of each other—trim them up smooth, and let each have a fork at the small end, to fasten a

trace to with a small string—the other end of the traces, to be hooked to the hames, so as that the poles can be lengthened or shortened agreeably to the size of the cocks; one end to drag till you get to the hay, then put a small boy on the horse, let him ride round the cock, and stop with his horse's head towards the stack, or barrack. A weak hand will do to hitch on the load, which is done by putting the poles around the cock, close to the ground, lifting the hay at each side of the cock, to permit the poles to go a few inches under it; then make the trace fast to the hames; step behind the poles, to keep them to the but end of the poles, to keep them to the ground at starting, also holding the top of the cock with your hands, to keep it steady until it is under way. The rider then drives to the stack, unhook the chain from the hames on the side next to the stack, wheels around with his horse, draws the poles out behind by the other chain, and gallops off to the next cock, where the hitcher is ready; having with a hand rake taken up in the meanwhile any lock that may have stuck in the stubble at the bottom, and put it on the top of the cock to be next taken. We generally let the cocks have one night to settle. One hand will hitch for two or three horses, and three horses, with lively boys to attend them, will draw as fast as four pitchers will put it up to two stackers, until the cocks get forty or fifty poles distant from the stack, when four horses would work to the best advantage. When we take chains to draw with, we tie four iron traces, end to end. Good hands will become expert in either mode by an hour's practice.

Very respectfully, yours,
ABEL SEYMOUR.

SMILEX; may it not drive away Rats? BOTANICAL ANECDOTE.

Some years past whilst traversing a field near Baltimore, I took up a young plant that looked like a long shoot of asparagus, and planted it in a corner of a little cultivated lot. The plant grew to a short vine and produced some herbaceous colored flowers. About this time I perceived a most unpleasant smell on passing near the place, which I conceived to be from a dead rat which it resembled very much. A servant was dispatched to hunt out the nuisance, but returned without being successful. As it infected the common pass to my house, I was obliged to undertake the odious task myself, and after some time, when actually brushing the vine, I discovered to my great surprise, that it proceeded from the blossoms on my new plant. Whether Flora is fond of contrast I know not, but when I compare the Rose, the Azoean Jessamine, and the Olea Fragrans, with the Fritillaria,* the Stercoria, the Ferrulat and my abominable Smilax, I am somewhat at a loss to know how Miss Flora's olfactory nerves can form such associations, and wonder that she does not turn these latter off from the list of her maids. But methinks the eye, the insects, the wren, the Hypochondriac Patient, the Doctors and perhaps the Farmers (if any of them drive off rats) all plead with her to spare them, whilst the nose must acknowledge his highness to be amply supplied from the residue—and should remember the stories of the Roman general, and

Paul against giving one member all the honor at the expense of the others. To ascertain whether a cat had the same idea of a rat smell, I took off one of the blossoms of the Smilax Pseudocassia (as Bartram calls it) and moved it gently towards the nose of a fine cat that lay asleep, but without touching her—in an instant she made a blow at it with her paw, and sprang up as if a real rat had touched her. The experiment was repeated again with nearly similar effect. Would not some of these flowers drive away rats? It appears to be the resemblance to old haunts of mice and rats that gives this virtue to hound's tongue (cynoglossum) which when dry and a little old, has this flavor manifest to every one. But the flavour of dead rats must be more terrifying to live rats than the smell of a deserted haunt.

RUSTICUS.

P. S.—The growth of this Smilax resembles the young cinnamon, which gives it the specific name.

THE FARMER.

BALTIMORE, FRIDAY, JUNE 29, 1821.

In the report of the late Cattle Show, regret is expressed that the blood of the fine Devon Cattle, sent by that eminent English farmer, Mr. Coke of Norfolk, to Mr. Patterson of Baltimore, cannot be more rapidly diffused throughout the State—and that some of the Bulls have not been offered for public use. We are happy to state that the wishes expressed in behalf of the public are in a fair way to be realised.

The increase of the females must necessarily be slow, and until they are more numerous they ought to be retained, guarded and fed, with sedulous care, in order to preserve the breed in its imported purity.—A different course of treatment by any into whose hands this stock may happen to fall, would be *reproachful to the country*.

These Cattle were landed here in the month of June, 1817, and consisted of one Bull of one year old, and six Heifers of two years old each. Mr. Patterson's division consisted of three Heifers, one of which died the following year, and the use of the original Bull for one year—an accident has since rendered him useless.

From his part of this Stock Mr. Patterson has furnished three Bulls one to the State of Connecticut, one to the State of New-York, one to a generous public spirited landholder of this town, and another has been recently and very kindly offered to be placed on the Editor's Stock-Farm for the use of the publick.

Mr. Patterson has been an experimental farmer for more than 40 years, and has imported more live stock, of greater variety and at greater expense, than perhaps any other individual. There is not a drove of fat Cattle brought to our market, which may not be recognised as the descendants of the Stock imported from time to time by Mr. Patterson, the late Mr. O'Donnell, Gough, Sprigg and a few others.—Every one admires the fine points displayed in these descendants—whilst the greater number of those who see them, set the means as fine country cattle, while few have the means or take the trouble to trace them back to their

imported progenitors, and give the credit where it is due.—We shall be glad to preserve in this Journal the history of every importation of live stock that is furnished us—as well as an account of the sales of all such stock.

We commence in this number, with much satisfaction, the publication of a series of numbers on *Flax Husbandry*, from the pen of S. W. Pomeroy, Esq. first Vice President of the Massachusetts Agricultural Society.—The subject is one of great interest, and fortunately, it could not have fallen into hands more capable of doing it justice. No article has fallen in price so little as flax—and since the Navy Board, with a wisdom, forecast and economy, which distinguishes all their proceedings, have determined to use none but American Duck, (which, on trial, has been found to wear double the time of Russia Duck) a ready market will be found for all the flax and hemp that can be furnished. The manufacture of this article has been brought to great perfection at Paterson, in New-Jersey. It is found not to *mildew*, as English duck does, and it is satisfactory to believe that the enterprising manufacturers are likely to find adequate encouragement. It is our duty to point out new and more profitable objects to engage the industry of the farmer, and accordingly we recommend the "Flax Husbandry", as worthy of his immediate attention.

PRICES CURRENT.

Flour from the wagons, \$4 12½—Whiskey from do. 24 cts. inclusive of barrel—Hay, per ton, \$18 a 20 —Straw, do. 7 a 8 —Wheat, White, 85 a 87 cts —Red, do. 82 a 81 —Corn, 39 a 40, brisk sales—Oats, 23 a 24 —Rye, 40 —Cod fish, per quintal, wholesale, \$3, retail do. \$4 —New-England Beans per bushel, \$1 12½—ditto Peas, 75 cts —Plaster in stone \$6 per ton—do, ground, \$1 35 per barrel, 33 cts. per bushel, \$8 per ton—New-Orleans sugar, \$9 to 12 30—Muscovado, do. \$9 a 12—American White Lead, \$12 50 —Ground do. 13 a 14—Linsed Oil, 75 cts —Feathers, 40 a 45 cts —Potatoes, per bushel, 62½ a 75 cts —Shad, new, \$6 —Herrings, \$2 a \$2 25, declining—Fine Salt, 55 cts per bushel—Ground Alum do. 55 a 60—St Ubes, 60—Cadiz, 50 a 55 —Turks Island, 75 —Live Cattle, \$5 a 5 50—Beef, 8 to 10 cts —Hams, 10 a 12 cts —Middlings, 10 cts —Butter, 25 cts —Peas 50 cts per bushel—Eggs, 12½ cts —Cheese 8 a 10 cts per pound—Tar \$1 30 —Turpentine, 1 87½ a 2—Pitch 24—Rosin, common, \$14, bright do. \$3 per barrel—Varnish, 25 cts —Spirits Turpentine, 33 cts per gallon—Cotton, (good Upland) 14 a 15 cts; very dull—Rice 3 a 3½ cts —Ship and Flooring Plank, \$5 a 27—shingles, best 6½ a \$7, common. \$3 to 4½ per M.

7 hds Kentucky Tobacco, very fine, sold the present week for \$6 50.

Maryland Tobacco.—But few sales for the last week—2 hds. wagon tobacco, highly fired, from Frederick County, sold at \$14—1 hhd. very superior fine yellow from do. sold at \$20 50—13 hds. uncommonly sold at \$15—40 hds. very fine red sold at 4 and 57, 4 months credit—Lower Patuxent, from 2 and 4 to 3 and \$5—Upper Patuxent, from 3 and 5 to 4 and \$6

No sales Virginia Tobacco.

Printed every Friday at \$4 per annum, for JOHN S. SKINNEI, Editor, by JOSEPH ROBINSON, at the N W corner of Market and Belvidere-streets, Baltimore, where every description of Book and Job PRINTING is executed.—Orders from a distance for Printing and Binding, with proper directions, promptly attended to.

* Fritillaria or Crown Imperial. The wren is fond of running up the stalk and sipping the distillation from its nectaria, tho' a most abominable flavour to our taste.

† Fennel is an umbelliferous plant, producing asafœtida—it is mentioned by Captain Riley, though he seemed unacquainted with it.

A MERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

*"O fortunatos nimium sua si bona norint
Agricolae."* VINO.

VOL. III.

BALTIMORE, FRIDAY, JULY 6, 1821.

NUM. 15.

AGRICULTURE.

ADDRESS,

*Delivered by JAMES M. GARNETT, President
of the Agricultural Society of Fredericksburg, Va—
May, 1821.*

GENTLEMEN,

The circumstance of our Society's not meeting in November last, although to be regretted on several accounts, will be productive, I hope, of at least one advantage. All those who were disposed to comply with the excellent resolution offered twelve months ago, by one of our Committee of Correspondence, having had ample time to prepare their reports, will be now ready, we trust, to make them. Had these reports been called for in November, if certain tales which I have heard whispered about be true, many of them would have contained little else, but an acknowledgement that their authors "had left undone several of those things which they ought to have done;" for as the stories go, a considerable portion of the autumn's work was not completed, until very late in the past winter. Whether these insinuations have any foundation in fact, I cannot take upon me to affirm, however strong may be the suspicions of some, that they are not entirely groundless. Still I thought it my duty to mention them, that our members may be apprised how closely all their proceedings are watched, in consequence of their union with an Agricultural Society, by some of those who will take no part with us. But May day is now passed, and I therefore confidently trust, that most of us will be prepared, not only to say something of our transactions during the preceding year; but to speak of the work belonging to 1820, as long since finished. Memoranda of this kind should be kept by every member of our Society; and if it were considered a part of our duty, annually to exhibit such portions of them as contained particulars which we might deem worth noticing, we should certainly advance our own knowledge and practice, if we did not materially improve that of others. In this way we should collect a sufficient number of facts, in regard not only to the culture and management of every variety of crop; but also in relation to the management of every kind of stock, to enable us to judge which was the best practice with respect to each. We should not then be left, as at present, to form our systems from a few solitary cases detailed in newspapers, which cases should be looked upon in most instances, as exceptions, rather than rules. It is true that there is now a good Agricultural Paper accessible to us all—I mean the "American Farmer"; which by the time that it has been in operation for a year or two more, under the management of its present very zealous and intelligent Editor, will probably present an excellent system of every kind of American husbandry. At present we have no such thing; the European books, valuable as they certainly are, containing not much that is applicable, without considerable variation, to our soils, climates and situations. The consequence is, that every agriculturist has a distinct plan of his own, producing endless confusion, uncertainty, and wasteful misapplication of labour. On this account it behoves us, as Virginia Agriculturists especially, to pursue steadily, the golden mean between too much, and too little decision and action, so well expressed in that paradoxical apothegm—"make haste slowly." Among the innumerable wise saws and maxims transmitted by our pains-taking forefathers to enlighten our ignorance, and guard us against evil, I do not recollect one of more general application; not one more generally disregarded;

nor any that would do us more service, were we to practice it as we ought. There is no trade, profession, or calling, but might derive great advantage from making it the rule of its conduct; for all that was then gained either in theoretical knowledge or practical skill, would be an advance towards the highest attainable perfection, secure against error, or retrogradation. Yet if there is one occupation which would be more especially benefited by adopting this maxim, than any other, it is that of the agriculturist; because there are none in which hasty conclusions are more prejudicial; none wherein partial, inaccurate experiments lead both the performers, and their followers to more erroneous opinions; nor any wherein such experiments prove more pernicious obstacles to the regular progress of sound theory and practice. To what other cause can we possibly attribute the numerous changes so frequently occurring in both? How else can we account for the various conflicting systems in this most ancient of all arts? Or in what other way shall we be able to explain the little ground which has been gained among us, in the true knowledge and understanding of all the different processes in husbandry, and of the best methods of practising them? Experiment, the proper test of every opinion, can lead only to error and confusion, unless it be frequently repeated, and always under circumstances as nearly alike as possible. Yet notwithstanding this fact is one of the first things forced upon us, after laying aside the petticoats of our infancy, how often do we see the most positive, and extensively applicable conclusions drawn from a single trial; or perhaps from two or three ill-defined experiments, carelessly made, and in which many of the most important particulars are not mentioned at all; or marked in such a way, as to leave us altogether in the dark respecting the all-essential fact of exact similitude in every circumstance. In many of these cases too, deemed sufficient to be the foundation, at least of new practices—if not of entirely new systems, the experimenter's opinions have preceded the facts upon which alone they ought to be founded: and we all know in such situations how easy and natural it is to make the result conform to the pre-conceived notion of what it ought to be. Thus one will tell you of some single trial that he has made, from which he draws this sweeping conclusion: "it warrants an opinion that he has long entertained;" but he will probably describe this experiment so loosely, as to render it impossible for you to distinguish between what is stated for matter of fact, and what for matter of opinion. Another will give you in very ambiguous terms, the result perhaps of two or three trials, evidently made, rather to confirm some pre-existing fancy, than in the true spirit of an impartial enquirer; and will immediately begin to build a system upon this very slender basis. This is literally the inverse of all true methods of philosophising; and has always proved a more prolific source of error, than any other cause whatever. Were no opinion which is to govern our practice, adopted conclusively, until it was sanctioned by a long course of well defined and most accurately tried experiments; although we might not at first view appear to advance so fast, as we should in reality make infinitely greater progress in all useful knowledge, than we do: and what would be better still, our progress would be secure against all the mischievous errors of innovators, projectors, and visionary theorists.

Another great obstacle to our attainments in agricultural knowledge, but of a nature quite opposite to the habit of forming hasty conclusions from loosely made experiments of our own, is the obstinate incredulity often manifested by us in regard to the ex-

periments of others. These are slowly imitated, even where they succeed immediately under our own eyes; but if followed by all, it is too often with some fantastic variation of our own contrivance. This probably produces a failure. The trial is then christened "Mr. such a one's method," and is condemned off hand before the public, without any explanation of our own interpolations, which if fairly stated, might prove that the failure was owing to some attempted "improvement" (as it was designed to be,) of a conceived Bugler. Thus it fares with numerous real improvements for years after they have been successfully practised by the inventors. The case is still more hopeless where we have to gather agricultural knowledge from publications of any kind. If they are in manuscript, we view them with a very knowing suspicion and jealousy; but should they happen to be in "your print hand," which even Tony Lumpkin preferred as a source of information, they are all pronounced "theoretical" and "visionary," nor will one syllable of the matter be believed or regarded. Thus, between the precipitancy with which we confide our own crude, hasty, and illy defined experiments; and the dogged incredulity which we oppose to all experiments made by other people; we either take for granted what remains to be proved—thereby involving ourselves in numberless losses and disappointments; or continue to the end of our lives in the old beaten track which has been faithfully pursued by many of us from the times of our great, great grand-fathers. The man who means to succeed in agriculture, or indeed in any thing else, should be always open to conviction, and ever hold himself in readiness to give a fair and accurate trial to all sorts of experiments holding out a rational promise of success; taking care at the same time, not to hazard more labour or money in making them, than a sound discretion will justify.

In addition to the foregoing permanent obstacles to the acquirement of knowledge in all the branches of rural economy, we have to encounter one, at present, which although of a temporary nature, will infallibly prove very detrimental, so long as it lasts. This circumstance entitles it to our serious consideration. Because "we have fallen upon evil times," or rather because evil times have fallen upon us, we hear many of our Brethren exclaim: "it is not worth while to make crops, we can get nothing for them;" "neither is it any object to improve our lands." This is moody madness, or sheer folly. What, because a sudden change has occurred in a state of things, during which the profits of all kinds of occupations were so enormous, that there was imminent danger of the whole nation's becoming a set of speculators and gamblers; shall the followers of that particular occupation upon which all others unavoidably depend; and without which indeed, none could exist—shall they, when the medicine is applied, that alone can bring us to our senses, be among the first to despair of their situation? God forbid: for the honor of our profession—the welfare and happiness of the nation, let us hear no more of a sentiment which, neither the peculiar circumstances of the case, nor any just views of life can palliate or excuse. It is certainly true, that our progress towards independence and wealth, must be by much more tardy steps than formerly; but the chief difference is, that we must now be content to walk slowly, instead of rushing on at the top of our speed. Our road is still the same; the goal at which we aim, not changed; but the facilities of travelling, the pleasures of the journey, and the pageantries of its termination are considerably diminished. We have fewer flowers to cull by the way; and not quite as many junketing houses at which to regale ourselves.

Still if we can be satisfied to "make haste slowly," we shall assuredly reap our reward if Government will let us alone. Have we anything to expend on our land? There never was a time, when the funds devoted to this object, would purchase more labour and other means, than at present. Do our debts forbid such an application of our finances? There never was a period, when exertion was more necessary to pay them. Hence both the agriculturists who owe money, and those who have it to spare, will find in the circumstances of the times if they view them as they ought, abundant reason for augmented industry, and assiduous application in pursuing their professional labours. Let us only go on at a steady, indomitable, and sure pace, and we must succeed, if any occupations in the community do.

There is yet another sore evil in our course, constituting no small impediment to real improvement. But being of a character somewhat ludicrous, I am almost afraid to mention it, lest some may deem it derogatory to the dignity of our calling. Believing however, that it is not peculiar to our profession, as some sage satirist has long ago remarked, that "men are but children of a larger growth;" and thinking also, that some benefit may result from an attempt to expose it, I shall venture a few remarks on this topic. The evil to which I allude, is our passion for Hobby Horses. One while they were all Merino Rams, often ridden—Pepin and Brieschard-like, two or three at a time. Then came up the fashion to make hobbies of Mammoth Bullocks; of Alderney, Devon, Teeswater, or Holderness Cows; of enormous Hogs, utterly unfit for any purpose but making soap, or leaving a Ruta Baga and Mangle Wortzel Roots, supplied the place of the canes and sticks of our childhood. Upon some one, or all of these highly pampered couriers in turn, we have been for years past, prancing delightedly and proudly, through all the news-papers in the United States, to the great wonderment and delight of all beholders. This would all be very well—for a ride on a favorite hobby is often far more pleasant, than one on a real horse; if too much of the general and more important business of our farms had not, in many instances, been sacrificed to the indulgence of these fancies. The whistles have been to dearly paid for; and no substantial improvement has been made in the various branches of our rural economy; commensurate to the extravagant expectations raised in the public mind by these agricultural pageants.* Much undoubtedly, has been done; and advantages, great and extensive, have been gained by the increased zeal, intelligence and industry with which agriculture has been, and is pursued in almost every part of the United States. But I am thoroughly persuaded, that our progress would have been still greater, except for the fascination of the aforesaid hobbies; many of which have proved so vastly tempting, that very few, even of the gravest among us, have been able to resist the inclination to take a ride. The discovery that much extra feeding, and extra culture, would make both plants and animals considerably larger than those individuals of their respective species upon whom this superegratory care had not been bestowed, is not, I fear, one of the merits of the 19th century. But I believe we may justly claim all the praise, if any be due, for ascertaining that individual and rare excess of dimensions, either in animals or plants, can prove a general benefit to the cause of American husbandry. Should monsters in the vegetable and animal kingdoms become common, they will cease to be monsters; and being no longer rare, both the honor and the profit of owning and exhibiting them, must of course be at an end. But unless they do become common, where is the general benefit in their existence? That such things neither can be general, nor answer the purpose of food either for man or beast, so well as plants and

animals of inferior magnitude, is universally admitted. Why then, should premiums and other rural honors be bestowed to encourage this unwholesome whim? To expend money thus, is little better than throwing it into the sea. In short, we may venture to lay it down as a principle, without exception, that all premiums having a tendency to render tillage and pasturage more showy than useful, directly retard, rather than advance the true interests of agriculture. Every land owner may do something towards bringing these two great sources of individual and national prosperity to their highest attainable state of profit; but every land owner cannot be either the possessor or showman of agricultural rarities. All rewards therefore, which are offered with a view to promote the cause of agriculture, should be regulated solely by the principle of encouraging nothing but what may tend permanently to increase the general profits of those who devote themselves to the particular branches of husbandry best adapted to the circumstances of the country wherein such rewards are proclaimed.

Among the few causes of felicitation, which present themselves to us agriculturists at this time, I cannot omit to mention the second failure of the Tariff project; upon which I cordially repeat my congratulations, notwithstanding it may bring upon me, as it did last Spring, no small degree of news-paper obloquy. That I should so frequently recur to this subject, will not, I hope, be thought unbecomingly or irrelevant, so long as it continues to hang over our heads like a portentous cloud, threatening to blast or sweep away all the fruits of our industry. The basis of this ruinous scheme, is neither more nor less, than a power claimed by its advocates, for Congress to create and foster any one or more occupations in society, at the expense of all the rest, without any other limitation in regard either to the means or the measure, but the sovereign will and pleasure of the national legislature. This power must be exercised to a great extent, or I venture to assert, that the boon so earnestly required, can never be granted. Each increase of duties has at first been pronounced sufficient; yet very soon, duties still higher have been asked. It is no purpose, that the friends of the measure disavow any wish or intention of pushing it to extremes. Such disavowal furnishes no valid security against congressional abuses in this particular case. Without the smallest intent to arraign any man's motives, I must take the liberty here to remark, that no legislator, I believe, since the creation of the world, has ever yet had the folly to preface any project, however pernicious its tendency might be, with a declaration that he designed it to do mischief; still history furnishes us with abundant instances of highly mischievous legislation. The kind and affectionate style, therefore, adopted towards us in the late Report of the Committee of Manufacturers, which I presume we are to consider a complete expose, both of the motives and purposes of the manufacturers, is but poor compensation to us, for the scheme, which this style is intended to recommend. Indeed, when I contrast the sugared words of the author, with the bitter potation that he aims to make us swallow, I am forcibly reminded of a remarkably severe old farmer, whom I once knew, whose very worst flagellations of his servants were always accompanied (as it was said) by the pretentious address of "my dear Honey." And this truly tender salutation ever inspired far more terror and dismay in the unhappy objects of it, than his most angry curses and reviling; for from the last, they often escaped without corporal punishment; but from the first, they never did.

If the author of this report really feels the affection for us which he professes, I sincerely wish he could think of some better way to shew it, at the next session of Congress; for, should he succeed in his present scheme, his friendship will be not less pernicious to us, than his most violent enmity. He may then, very well apply to us, the language which Swift makes Judge Whitshed apply to his tenants:

"They swear I am so kind and good,
I hug them till I squeeze their blood."

Relying upon the strenuous regard which the author (whoever he is) of the Report from the Committee of Manufactures so energetically professes for us all, I will take this occasion to make an humble request on behalf of the whole body of Southern agriculturists, which, being very moderate in its nature, and entirely legitimate in its object, I confidently hope he will grant. It is, that he will read, before December next, and endeavour to persuade his tariff friends to do the same, a certain small pamphlet, lately published in New-York, entitled "An Examination of the New Tariff, proposed by the Honorable Henry Baldwin, a representative in Congress by One of the People." If, after this, they should still retain their partiality for this tariff, I, for one, shall be ready to acknowledge, that they are made of far more impenetrable stuff than I had imagined. It has rarely been my fortune to meet with a more complete refutation of any thing, than this pamphlet contains of the Tariff project; and I am thoroughly persuaded, that were it generally circulated, it would convince every man, who is open to conviction.

Connected with this subject, there is a curious fact in regard to the last law for taking the Census, which I take the liberty to notice here, as I do not recollect seeing it noticed elsewhere. Although many attempts were made to ingraft in that law certain provisions for the purpose of ascertaining various statistical facts, which have been deemed so important, I believe, in every other civilized country, as to be matters of legal regulation in all, not one succeeded, but that which secured a fuller enumeration of the manufacturers, than of either of the other classes. For a distinct designation of this class, an additional fee was allowed; the consequence of which has been, that several farmers of my acquaintance have had considerable difficulty in prevailing on the census-takers not to rank them, together with all their negroes, as manufacturers; because, occasionally, in bad weather, and in the case of women with young children, they were occupied, at times, in household manufactures. That the same thing has happened to many other agriculturists, I have not the least doubt. Why such an inducement should be held out by the law, to swell the aggregate of the manufacturing class beyond its just dimensions, I cannot well conceive; unless it is, that in future applications to Congress, the relative proportion of that class to the rest of our population may be made out much greater than it really is by including, in one undistinguished mass, not only all those who carry on public manufactures, but likewise all who are occasionally engaged in the household and family way, and representing them in the aggregate as suffering for the want of that kind of government protection (as it is called) which consists in making all the other occupations of society pay more for what they buy, than they formerly did. In regard to Virginia, and I believe I might add the Carolinas and Georgia, as well as all the other Southern and Western states, I do not believe one ten-thousandth part of those, who in the new census table will be designated manufacturers, are of that description, who would ask for additional duties on foreign goods. Yet I have no doubt, that in the next Tariff pamphlet which comes out after the census, we shall see them all marshalled numerically on the side of the petitioners, for augmented imposts. Aware that such a game might be played, although I have no wish to accuse those who made the law of any such design, I have been at some pains to furnish myself with facts, by which to ascertain the probable amount of those individuals in my own state, who would be classed as manufacturers, solely in consequence of their being occasionally engaged in household manufactures. But an account of the principal articles which they thus produced, being more attainable than the number of persons occupied in producing them, by temporary and irregular labour thus applied, I prevailed on the individual who took the census in my own county—a gentleman entirely to be relied upon, to procure from each family an account of what they manufactured within themselves, of the four articles in most common use—to wit: woollen and cotton cloth, stockings and shirts. The

* See some excellent observations applicable to this subject by Dr. Mease, "on the late Cattle Procession in Philadelphia," published in the American Farmer, on the 13th of April.

result was, that in a population of only nine thousand nine hundred and nine souls, there were made within a year—

Pairs of Stockings, ...	6216
Do. of Shoes, ...	5496
Yards of Cotton Cloth, ...	65177
Do. of Woollen do.	14718

To this estimate, the gentleman assured me that he was confident one-fourth might safely be added, as he had commenced taking the census for some days before he began this business, and several refused to give him any account. But I prefer being under, rather than over, the true amount in the following calculation. If the county of Essex may be supposed to furnish, as I think it does, an average, certainly short of the true one for the whole state, both in regard to population, and the amount of household manufactures, such as are enumerated above; then, as we have, besides 4 boroughs, 104 counties in the whole state, the aggregate amount of the above articles may safely be stated as follows:

Pairs of Stockings, ...	646,464
Do. of Shoes, ...	571,584
Yards of Cotton Cloth, ...	6,778,406
Do. of Woollen do.	

Thus extensively, have the duties already existing, compelled us, who belong to what are called "the non-manufacturing states," to manufacture for ourselves, as a matter of necessity, rather than choice, in regard to a large portion of the specified articles. And should these duties be raised still higher, thereby inevitably diminishing still further our capacity to buy either foreign or domestic manufactures, we shall not be long with wheat at one-half, and corn at one-fourth of former prices, in getting to that enviable state of primitive simplicity and independence, when every man must become his own agriculturist—one of the chief advantages of the social state—*i. e.* the division of labour, being entirely lost to us by a system of policy to which it appears, in my humble judgment, that nothing but sheer fatuity or madness can ever cause the American people to submit.

In whatever way this great question may finally be settled, it is most earnestly to be hoped, that it will be one of the first subjects acted upon at the next session of Congress; for almost any thing would be preferable to the present suspense, which in a great degree paralyzes every branch of national industry, but especially agriculture and commerce; the last of which, both foreign and domestic, is as essential to give healthful activity to the first, as the action of the heart is, to circulate the life-blood of the human body. If we can consent to learn from that nation, whose example in regard to commercial restrictions, a portion of us have recently been so anxious to imitate, we shall soon be thoroughly satisfied that the diminution of duties already high, will always augment the public revenue, by increasing both exportation and importation; and hence, that a policy exactly opposite to the one which so many of us wish to be pursued, should be adopted without further delay. Let the scale of our duties be lowered rather than raised; and, then let it be permanently fixed, that those, who are most liable to be affected by their frequent fluctuations, may know what to be at. A greater portion of American capital is now lying dead to every useful purpose, than ever was placed in the same situation before. It is true, that some external causes, beyond our reach, contribute to produce this state of things; but the chief evil lies at our own doors, created by ourselves, and still pertinaciously continued, although removable at pleasure. This consists in numerous embarrassing commercial restrictions, misallied regulations; aggravated by a threatened augmentation of more than two years duration, pending which our capitalists have been afraid to invest their money in any thing that could be materially affected by that increase of the existing duties which has been not only petitioned for, as a favour, but demanded, as a right.

How far, gentlemen, you may deem the foregoing remarks, in regard to the legislative injuries with

which our interests are still threatened relevant to the nature of such communications as your presiding officer is expected to make, I cannot take upon me to say. But thinking, as I do, that such of our difficulties and embarrassments, as arise from legislation, are not less worthy of examination, than those which we ourselves have the power in a great measure to remove, I hope to be pardoned for adverting to them, as I have done. The free and public discussion of all topics immediately affecting our rights and interests, has ever appeared to me one of the most useful purposes to which Agricultural Societies could turn their attention. It can never do harm, but may produce much good, if the sole object be, as you may rest assured mine is, to attain truth in relation to every thing which concerns us. That we are most deeply concerned in all laws directly bearing on agriculture, none can deny. What better way, then can we pursue, in endeavouring to prevent the passage of such as we believe will either ruin, or greatly injure us, than to express as publicly as possible, the objections which we have to them? To attempt this, whenever our interests are assailed, must be a part of my vocation, whilst I hold the office with which you have honored me; for the best imaginable instructions in regard to all the operations of husbandry, even were I capable of giving them, would be of very little use, comparatively speaking, unless the expected products of those operations were first secured against unjust and oppressive taxation in all its possible shapes and forms. Not that I have the vanity to believe myself particularly gifted with any extraordinary power to prevent such calamities; but a mere child, we know, can cry fire! loud and often enough to rouse those who are competent to save the house, when in danger. On this principle it is, that I again take this occasion to implore our agricultural brethren throughout the Union, to stand by each other hereafter in a more public way, than they hitherto have done—not to ask laws to the injury of others, but to prevent, remonstrate, and protest without ceasing, against every attempt to pass such as may injure themselves, by whomsoever they may be either required or proposed. That in doing this, they will best secure, not only their own interests, but those also of the state, is very certain; for it is demonstrably true, that in every agricultural country, rescued from barbarism, and more especially in ours, where the great mass of agriculturists are both landlords and tenants, the landed interest and that of the state are completely identified. This fundamental truth has recently been so satisfactorily illustrated and proved by the justly celebrated Malthus, that it may now be considered a cardinal axiom in political economy.

Having adverted to the topic of "instructions in regard to the operations of husbandry," I must finally request you to recollect, that I have hitherto said very little, if any thing, which can be considered as assuming this authoritative character. My motive for making this observation is, that the various communications which I have had the honor to make to this, and "The Virginia Society for promoting Agriculture," have excited, according to the information of several of my friends, many enquiries relative to my own particular management, as a farmer; the general inference appearing to be, that the man who writes much on the various topics of rural economy, should be a good practitioner himself in most, or all of the various branches. If these gentlemen had taken the trouble to consider maturely, what I have deemed it my duty to write, they would have found, that I had devoted my attention rather to the detection and exposure of errors, than to the recommendation of practices, which I had experimentally proven to be good; and of course, that the legitimate conclusion, in regard to my own practical skill, would not necessarily be very favourable. Every day's experience will convince us, that the man who has suffered most from erroneous practices, will be much better able to explain and expose them, when once he has become so sensible of his faults as to resolve on reformation, (which is the chief merit I claim,) than he who was never guilty of any. For this reason it is, that those who have been among the worst man-

agers themselves, are most capable of shewing in what bad management consists, as well as how it operates; of all which the good managers from the beginning, know nothing experimentally. The avoidance of evil, or the pursuit of good, should depend on the intrinsic merit or demerit of each—not on the number or character of their followers. If I have succeeded therefore, in persuading any of my brother agriculturists to abandon certain obviously pernicious practices which prevail among us, or to pursue others which they find to be beneficial, let them not think it necessary to pry too closely into my own proceedings in order to confirm their's, lest they should find that their lecturer depute, contemned by many others in all professions, does not fully perform what he teaches; and lest they should compel him—like the disorderly parson, reproach for the disagreement between his precepts and his practice, to exclaim—Gentlemen, "Do as I tell you, not as I do."

From the Massachusetts Agricultural Journal.

ESSAYS ON FLAX HUSBANDRY.—By S. W. Pomeroy, Esq. first Vice-President of the Massachusetts Society, for promoting agriculture.

ESSAY II.

CHANGE OF SEED.

Notwithstanding it is an opinion well established among experienced flax growers in this country, that a change of seed is advantageous, it is apprehended that they are not aware of the extent of the benefit to be derived by selecting seed from a soil or climate essentially different; and it may be owing to a want of attention in this particular that the flax crops are so uncertain, and the quality inferior, however perfect in other respects the system may be conducted. Mr. Young observes, that "foreign flaxseed was universally used in Ireland, when it could be obtained, otherwise they were careful to procure seed which grew upon a soil of an opposite quality from that which was to be sown," that "American seed was preferred, and produced finer flax than any other. Baltic seed produced more, but of a coarser quality." It is well known that American seed always bears the highest price in the Irish market.

We next look to Flanders, where flax was cultivated at a period as early as the commencement of the Christian era.(6) Fortunately we are furnished with "directions for cultivating flax after the Flanders method" published by commissioners and trustees appointed by the British government to promote the Linen trade in Scotland, at the head of whom was the celebrated Lord Kaims—from this high authority we find that it was the practice "to sow seed imported from Riga, if it could be obtained, otherwise the produce of Riga seed sown in Holland, and if that could not be had, that which Riga seed had produced in their own country, being careful to choose that which had grown on soils of a different texture and quality. What is the practice in Germany, where the cultivation is very extensive? By a respectable British publication, now before me,(7) in which an account is given of the trade of Stettin, a city of Prussian Pomerania, situated near the mouth of the river Oder, it

(6) Pliny's Nat. Hist: Book 19.

(7) Commercial and Agricultural Magazine, vol. ii. 1800.

appears that the extent of the linen trade is estimated by the quantity of flax-seed imported—and it is stated that on an average of ten years preceding 1796, twenty-one thousand six hundred and forty-five tons of flax-seed were annually imported into that port to be sent up the Oder and the waters connected with it, which, at 40 bushels to the ton, amounts to upwards of 800,000 bushels! sufficient for half a million of acres at the rate it is sown in this country! and it is not improbable that large quantities are imported into other ports connected with the large German rivers.

Foreign flax-seed was sought after even in the remote valleys of Switzerland, as appears by the following extract from a treatise on the culture of flax by Mr. Tschiffeli, president of the economical society of Berne. "In general the best flax seed is produced on strong soils and in cold climates. Experience has long convinced us that what is brought from Livonia" (Riga seed) "is to be preferred to all others, but when this cannot be procured, we must make use of that which grows on our own mountains, for instance Gessenaria, Jura," &c.

A Flemish colony first settled the island of Fayal, and introduced flax. They have become amalgamated with the Portuguese, but the culture, and manufacture of linen in families, has continued to an extent nearly equal to the cloathing and general consumption of a very dense population. The soil is mostly in tillage and from its elevation admits of a variety of aspect and temperature, and great care is bestowed on the culture of flax. I have been informed by Mr. Dabney, the United States consul for the Azores, who has resided fifteen years at Fayal, that in several instances, American seed, obtained from ships bound to Ireland, arriving in distress, has been sown; and the product in flax and seed, has been fifty per cent. more than from that of native growth by the side of it! We have no information to this point from Russia or Italy—but it is believed that examples enough have been cited to shew the importance attached to this branch of the system in Europe, and to justify the conclusion that in this country a continued, judicious change of seed will be indispensable to the successful prosecution of flax husbandry; and a further inference may be drawn, that experiments on various soils with seed the growth of different climates, are requisite to direct the farmer to the quarter from whence his best seed may be obtained.—Here opens a legitimate field for our numerous agricultural societies to labour in; on their exertions the farmer must depend in the outset; but let it once be ascertained that Riga seed is best in one section, Dutch, or German in others, and mercantile interest, if not patriotism, will soon distribute them.

Should it be objected to importing seed on account of the expense, we reply, that large quantities of linseed oil are constantly imported, and the difference of price between our own seed and that imported, will not much exceed what is now paid for good clean seed for sowing or export, and that which is sold for crushing—but if it is fifty cents per bushel, or more it can be no object, compared with the advantages that may be reasonably expected to result

—and the farmer need not be told, that, "in all his operations, parsimony is never so ill judged, as when exercised in the selection of his seeds." It is not pretended, however, but that, from the great variety of soil and climate in the United States, the object in view might be obtained without importations—yet it may be important to have a good stock to begin with, when trials could be instituted with its produce; at any rate it cannot be expected that individuals will embark in such a course of experiments, either with foreign or domestic seed, unless encouraged by agricultural societies or other public bodies.

SOILS.

The subject presents a character of such national importance, that a wider range must be taken than views of mere local interests require—we shall therefore first examine, under the present head, the different sections of our country. *New soils* are found most favourable to the growth of the flax plant—and it is scarcely necessary to mention the vast fertile tracts on the *western waters*, as capable of producing immense quantities.

The State of Maine has a soil and climate, that appears highly congenial to flax culture.—The extensive tracts of strong carbonaceous soils, particularly those denominated "*black lands*," and the almost total absence of drought, will enable that state to possess a staple in this article, not inferior in value to any, except grazing, whenever the energies of her population shall be directed to it. The rest of New England, that part of New York not included in the first description, and New Jersey, have bodies of land suitable for flax, quite sufficient to be embraced in the system of agriculture best adapted to their situation. Pennsylvania probably grows more flax than all the other states in the Union.(8) The Atlantic sections of the states, south of the Delaware to the cotton latitude, possesses considerable tracts of alluvial soils, bordering on the numerous rivers, creeks, bays and inlets, with which they are intersected; a portion of them, besides swamps, may be reclaimed without great expense; they have also bodies of strong clays. Should these be too much exhausted by severe cropping, they may soon be restored by the admirable clover system adopted by Colonel Taylor of Virginia, and made to produce good flax—as it is probable, from the early period the ground may be sown, that the crop would be seldom injured by the droughts, to which the climate is subject.

The soils which rank first in this country are the fat bottoms, that are covered by the fall and spring floods which subside early enough in the season to get in a crop; those river flats on the second banks, that have a depth of strong alluvial soil; the reclaimed marshes and swamps with a black unctuous soil, not too peaty, with as much clay in the composition as will permit its being rendered soon dry and

(8) By the returns of the Marshals in 1810, there was manufactured in the United States 800,000 dollars worth of *Linseed Oil*—500,000 dollars of which was made in Pennsylvania, and 200,000 dollars in N. England. See Cox's statement.

mellow, and not retain water on or near the surface; if it stands two feet below, so much the better, but must be well guarded by ditches and dykes against sudden freshets. Such is the soil of the province of Zealand, where more flax is raised, and of better quality, than in any other part of Holland. The next in estimation are the strong black loams on clay, or hard pan that will retain moisture. Yellow loams, with a holding subsoil, may be rendered suitable for flax by proper cultivation; and since the discovery that plaster of paris is an excellent manure for it, a crop may be obtained with much more certainty on lighter lands than formerly. Perhaps the characteristic of *best garden mould* may be applied to a flax soil, viz. *retaining sufficient moisture, and all that falls, without ever being saturated*; but on any soils the surface should be completely pulverized, and never worked when wet.

MANURES.

No dung should be applied to the land when the flax is sown, but may be put on bountifully with the previous crop. The objection is, that dung forces the growth so rapidly that the plants draw up weak, have a thin harle, and are more liable to lodge. Lime, marle, shells, leached ashes, &c. do not produce such effects. *Top dressings*, soon after the plants appear, of plaster, ashes, soot, &c. are highly beneficial, as they not only encourage the growth, but are a protection against *worms* which sometimes attack the young plants, and may be considered the only enemy they have, except weeds.

Salt has been mentioned by the late Doctor Eliot, of Connecticut, as an excellent manure to plough in with flax at the rate of five bushels to the acre;(9) probably more would be better. Plaster is now much used in Dutchess county, the best cultivated district in New-York, as a manure for flax, on which its good effects are as apparent as on corn.

The late chancellor Livingston viewed a piece of flax on the 20th of May, 1791, belonging to a poor tenant, very injudiciously sown on a dry sandy declivity, it looked so extremely sickly that the tenant thought of ploughing it up—the chancellor gave him three bushels of *Plaster*, which was sown the next morning before the dew was off, and had the satisfaction of seeing his tenant gather more flax from this half acre in an uncommon dry season, than was produced from any acre in the neighbourhood.(10)

PREPARATION OF THE LAND.

It is not unfrequent in Ireland to obtain crops of flax from green sward, on which they put lime, shells, limestone gravel, &c. and break up in the fall, cross ploughing and harrowing fine in the spring—but it most commonly succeeds a crop of potatoes which receive the manure. In Flanders, *Hemp* was formerly more used as a preparation for flax than since the introduction of potatoes. In Italy it commonly precedes flax, and although the land gets no tillage, as the hemp is well manured it grows strong, and is then a powerful destroyer

(9) See Eliot's Essays on field husbandry.

(10) Transactions of Agr. Soc. New-York.

of weeds. In England, on some of the *fen* soils of Lincolnshire, &c. the usual course is *Hemp* two or three years in succession, well manured, then flax without manure—a crop of *turnips* is often taken the same season after the flax, and *hemp* succeeds again. In Russia it is stated that extensive crops of flax are drawn from new cleared lands after burning them over, and harrowing in the seed with the ashes. The best preparatory crops in this country, at present, appear to be *potatoes*, corn and *roots*; they will most generally repay the extra manure, and if well managed check the production of weeds.

The following *rotations* may serve as an outline subject to be varied, and *hemp* or other crops introduced as circumstances require, viz:—

No. I.—LOW, COLD, OR REGAINED SOILS.

1st year. *Potatoes*.

2d do. *Flax* with seeds.

3d do. *Herds grass*, (*Timothy*) and *red top* or *tall meadow oat grass*, to continue three years or more, and the course repeated.

No. II.—STRONG UPLANDS.

1st year. *Potatoes* or *Corn*.

2d do. *Corn* or *Roots*.

3d do. *Flax* with seeds.

4th do. *Clover*.

5th do. *Orchard Grass* or *Herds Grass*, to continue three years or more.

No. III.—LIGHT LANDS.

1st year. *Potatoes* or *Corn*.

2d do. *Corn* or *Roots*.

3d do. *Flax* with clover seed.

4th do. *Clover* to be mown once, the after growth to be turned in and *Rye* sown thick on the furrow, which may be soiled or fed in the spring by sheep or milch cows, and ploughed in for

5th year. *Corn*.

6th do. *Spring Wheat* or *Barley*.

7th do. *Clover* and the course to be pursued as before, when flax will occupy the land every seventh year. In all cases, except when hemp is substituted, the tillage crops should receive the dung.

If the land is ploughed into beds, or convex ridges like turnpike roads about a rod wide, especially if low and level, the crop will be much more secure from injury by heavy rains, and the grass crops will be better if it remains in that form. On any soils, fall ploughing in narrow ridges will facilitate its early working in spring, and should not be dispensed with.

(To be continued.)

PETERSHAM, Oct. 2, 1829.

ON THE PRESERVATION OF FRUIT TREES.

Sir—Should the following communication respecting the preservation of fruit trees from decay and premature old age, appear to be entitled to notice, you will oblige by presenting it to the Trustees of the Society.

Several years ago I owned a tanyard on the bank of a pond, raised by a dam across a small rivulet, which passes through my farm in Petersham. Some of the tan, after it was taken from the vats, was occasionally thrown into the pond. I noticed from time to time, that the fish in the pond died. I was induced to believe, that some deleterious property in the tan produced the effect on the fish, and that it might be converted to some valuable use in agriculture.

At that time, from various causes, many of my fruit trees, and particularly my pear, peach, and plum trees, were in a state of decay. For the purpose of an experiment, I applied a small quantity of tan to the roots of my decayed trees; the result exceeded my most sanguine expectations. The trees began to revive, and the next season I made a similar and more extensive use of my tan about my fruit trees; and the result has been obvious in all, but more particularly in my pear, peach and plum trees, which are the most liable to decay in this section of the country.

Tan about the roots of trees, loosens the earth, and prepares it to receive and communicate greater quantities of nutriment to the trunk and branches. The tree is thereby invigorated, and acquires more strength to resist any disease, by which it may be attacked. But the most beneficial effect of the use of tan is to prevent the approach of all kinds of insects, which prey upon the very life of the tree. My fruit trees, which have been prepared with tan, have been wholly free from the ravages of caterpillars, canker-worms, grubs and every kind of insects; while others, which stand near by, and which have been neglected, have been more or less injured by these common nuisances, too common in fruit orchards, through the careless neglect of the husbandman. Tan also prevents the black gum from oozing from the trunks and branches of fruit trees; which is more frequently the case in damson, plum, and peach trees, than in any other, arising from the constitutional weakness of the tree, or from some other cause, which is prevented by the application of tan. This was the state of my trees, and of those of my neighbours, before I made the experiment by using tan. The result is obvious and notorious to all, who examined the trees at the different periods. My trees are healthy and flourishing and vigorous, while those of my neighbours, who have neglected the use of tan, are either dead or in the last stages of decay. My fruit has not only been greatly increased in size and quantity, but its flavour has been much improved and enriched.

A remarkable instance of the wonderful effect of tan in restoring decayed fruit trees to health and vigour is observable in a pear tree, which stands in my garden. Six or seven years ago it was almost lifeless. It had but one or two small green branches on it; the rest were entirely dead and dry. I was induced to try the effect of tan upon it, but with little hope of success. In the course of two or three years I was astonished to see new branches shoot out from its trunk; and it is now the most flourishing fruit tree on my farm. This fact can be attested by hundreds.

It has generally been my practice to renew the tan about the roots of my trees once in two years. It may possibly be expedient to renew it annually, as soon as the snow has been dissolved from the roots. I have usually appropriated from half a bushel to two bushels to each tree, according to its size. It may be carelessly placed around the trunk of a tree; and it will soon spread itself to a proper distance over the roots.

I feel the most perfect conviction of the sure and certain effect of tan in restoring decayed fruit trees to health and preserving them to vigour. Should any one, however, entertain doubts, the experiment may be easily made, with trifling expense, particularly by those who live in the neighbourhood of tan yards. Tan has been esteemed useless, after it has been thrown aside by the tanner. Any one, who will ask, may receive without fee or reward.

JOHN GATES.

PETERSHAM, Oct. 2, 1829.

We have seen and examined the fruit trees of Mr Gates, a respectable farmer of this town. We are satisfied that his statement respecting the effect of tan, in restoring decayed fruit trees to health, and preserving them in a flourishing state, is correct. Mr Gates has paid great attention, in improving his fruit trees, and we have no hesitation in saying, that we have no doubt that his discovery of the good effect of tan, will be most valuable to the community.

HUTCHINS HAPGOOD.

JARED WEED.

FOR THE AMERICAN FARMER.

TRIMMING OF HEDGES.

This is the favourable season for the purpose, where they have been annually shorn or trimmed of their superfluous shoots.

When the Thorn shrub was taken from its native forest, for the purpose of becoming useful to man, what was its character but that of a forbidding prickly shrub, armed with all its defensive weapons and original deformity; and whose sharp pikes and strong armour, rendered it painful to the touch, and seemed unsocial to animated nature, and scarcely fit to be admitted to a place in the forest, without offence to the neighbouring tribes of the vegetable community?—Yet when taken under the care and guidance of man, becomes eminently useful and subservient to his purposes of forming a *Hedge*—a safe and durable, as well as ornamental enclosure for the safe keeping of all the valuable, and most delicate productions of his labours of the field, an object of high importance to most of his pursuits of the art of Husbandry. What would it avail to plough and sow, and make every necessary preparation for a crop, and leave his soil unprotected for want of an inclosure that may be relied on?

The frailty of a wooden fence, daily declining to decay and dissolution, too often teaches, by sad experience, the consequence of labour lost for want of a better security against the depredation of prowling animals, seeking for opportunity to satisfy their craving dispositions.

As before remarked, this is the proper time for reducing the form of live fences, by clipping and trimming all the superfluous branches, in order to form the fence into the character of a hedge, more especially if it has been previously kept trimmed, as the annual shoots are always tender and easy cut at this early season, (the first of June). I have just completed all the trimming of my hedges, and from the uniform appearance they now exhibit, I am led to invite the farmers' attention on the subject; especially those who have embarked in the project of hedging—they ought to recollect the importance of having a *hedge* instead of a *hedge row*. I cannot with justice to the subject, apply the name of hedge to anything short of a trained one, and that kept in some sort of regular order. If it is suffered to run into a wild or original state, after planting even in rows, it no longer deserves the appellation of hedge—it is daily approaching to the original condition—it towers aloft, with its branches affording and inviting the birds of the forest to perch on its branches, as they cross the fields—it forms a convenient resting place, and at the time of their feeding on the fruit of various productions, that are well suited to their distribution, they are sure to leave a portion of the seed dropped amongst the thicket of such hedge rows; and being so completely protected by the branches, it soon becomes a nursery for most of the pestiferous products of the farm—therefore no longer entitled to the true character of a *hedge*. According to my idea and acceptance of the term, none but trained and trimmed live fencing, deserves the name of *Hedge*.

Lately having had a visit from one who has been a number of years in the cultivation and propagation of various kinds of thorn, but had been partial to the forming of hedges on the upright plan *without* laying on *plashing* the stock. And had not seen any of the Virginia kind treated in that way, although he had been cultivating them several years when he viewed the *plashed hedge* regularly trimmed, about fifteen feet high, that never had been suffered to rise above five or six feet high, with an impenetrable body from the ground up, and covered with an abundant coat of leaves, it satisfied his inquiring mind so effectually—he emphatically expressed his conviction of the utility of the practice.—(Although I had often previously reasoned with him on the subject) his judgment I found was never convinced until ocular demonstration decided the question—and since in recommending it to one of his friends, (a farmer) he endeavoured

ed to convince him of the propriety—by saying the question is forever decided in my judgment.

As those little incidents are so intimately connected with the subject of this essay, I could not in justice omit them, and more especially as they dropped from one whose discriminating powers of research, entitled his judgment to an elevated rank of respect.

His next inquiry was concerning the duration, or rather my *opinion* of their continuance in that desirable condition—in their native state, I have been able to trace them back, half a century under my own observation, without decay—and from other sources of information from Europe, three hundred years, and one case of six hundred—see the first volume of the *American Farmer*. Now whether the trimming will have any effect to shorten durability, remains to be examined—so far as I have observed, there is nothing to fear on that account, (although I have been cautioned about summer clipping) I have seen no bad effects from five or six years practice, and the two last excessive dry, and was a month later in effecting the business—this season they are remarkably vigorous—neither was the first of my plashing done with that judgment and prudence of management, as the latter has been; too much crowded in the layers or stalks laid down, consequently a diminution of vigor in their future growth—our late plashing has been much better managed, and the trimming commenced at an earlier period of growth, as they gradually enlarge by cutting a little higher every time they are cut—this occasions an advance in height, a little every year, until they finally have to be headed down into the older wood, which causes a little more labour. That was the case with some of mine this year, particularly one that was neglected last year, and did not get any taken off—this season it was headed as low as needful—it causes an unsightly appearance until covered by a new foliage, which a few weeks will furnish by young shoots again.

Like all other parts of the husbandman's charge, the hedge requires a continued care, and by training and trimming, it becomes subservient to his design, and assumes the true character of *hedge*—and it is the frequent and judicious application of the pruning knife, that gives it that appropriate name.

It is not the topping down, after obtaining an ungovernable height and cambrous growth, and leaving the severed stalks and branches to form a fence, until a new growth succeeds to supply the place of the former, (too prevalent a practice done in a slovenly manner) affording complete shelter for pestiferous products, to rise through the brush, that I deem to bear the name of plashing, or that deserves to be considered as hedging—yet the thorn seems to be provided with all the properties requisite, by the all bountiful Creator, to serve the good purpose of making a hedge after this treatment, by removing all extraneous matter, the young shoots from the old stumps, will form a stamina for complete hedge, by giving it due attention—and train with judgment for the purpose, as former essays on this head, in the first vol. of this paper will more fully point out.

It may be set down as an invariable rule, that trimming is as essential to the having a good hedge, as well as planting, but it is evident that many have planted, and ever after have neglected any further labour, whether from choice, or because they are capable of taking care of themselves, as their appearance seems to indicate such a conclusion, I must leave, but the case is, they will never have good hedges without trimming.

Mine, as well as some others in the neighbourhood, are now ready for inspection—those who feel so much interest on the subject, as to give themselves the trouble to examine for themselves, may from ocular evidence, settle the question in their own way—by seeing them.

CALEB KIRK.

Brandywine, Delaware.

To the Editor of the *American Farmer*.
HEDGING IN GEORGIA.

The subject of hedging will soon become ve-

ry interesting to the farmers and planters of the states of South Carolina and Georgia. Timber yet abounds in these states for the common purposes of fencing and building. But it can easily be seen that this abundance will not long continue under the wasteful management pursued in the use of fencing timber.—Some substitute for worm, or post and rail fences must be used, and the earlier this substitute is determined upon, the more expeditiously will it be introduced, and the less will our valuable timber be wasted. I have made several efforts to propagate the red, and black and knotted thorns, very commonly called the red, and parsley haws, but without any success. I have failed in an endeavour to preserve within proper space, and to give proper consistence to locust hedges. The sword palmetto, sometimes called the bayonet bush, or royal palmetto affords a very sufficient, but perhaps a very dangerous article for hedging. The beauty of the plant is very considerable. It bears an extraordinary number of seeds—but from these, I have not been able to obtain plants; yet the plant itself is very tenacious of life, and will flourish if laid upon the ground without roots. The object of this communication, is to invite from some of your correspondents, a detailed statement of the most expeditious manner of propagating this valuable hedging plant.

Respectfully, your friend,
DAVID P. HILLHOUSE.
Wilkes County, Geo. 1821.

TO THE EDITOR OF THE AMERICAN FARMER

MARKS OF GOOD COWS, &c.

Dear Sir,

You give us a modern description of a good cow, in one of your late papers—I now send you one from farmer Virgil. You may mark the difference, but it is worthy of observation, that the *milk* breed, and the *yoke* breed, to obtain the greatest advantage, are incompatible in the same animal, and we may say the same of the beef breed.

"The mother-cow must wear a lowering look,
Sour-headed, strongly necked, to bear the yoke.
Her double dewlap, from her chin descends;
And at her thighs the pond'rous burthen eods.
Long are her sides, and large; her limbs are great;
Rough are her ears, and broad her horny feet
Her colour shining black, but flecked with white;
She tosses from the yoke—provokes the fight;
She rises in her gait, is free from fears,
And in her face a bull's resemblance bears;
Her ample forehead with a star is crown'd;
And with her length of tail she sweeps the ground."

P. S.—My own observations on good cows, lead me to the following marks. Incurved horns, a countenance rather serious, a clean bony face, a neat neck, a capacious body either in length, depth and rotundity, a bag extending along the belly, wide and large, teats not crowded, red or brindle, hair on a dark hide, a voracious and indiscriminate eater of all foods, and industrious whilst on a thin pasture, seldom laying down. These last traits are very important.

If it does not make my postscript too long, you might insert Camerarius's description of

the qualities admired by the ancients in a horse. The breast broad, the hips round, and the mane long, the countenance fierce and somewhat resembling that of a lion, the nose similar in form to that of a sheep—the head, legs and skin, of a deer. The throat and neck of the same form with these parts of a wolf—the ear and tail, of a fox.

A COUNTRYMAN.

We have improved in many departments of husbandry since the days of "farmer Virgil," and it would be strange if we had not improved our knowledge and breed of cows. We doubt if one of Virgil's cows, with her *sour*-head! great limbs! rough ears! bull face! &c. would take a premium at our next Cattle Show.

EDITOR.

ECONOMY OF FUEL.

Persons who burn wood may make a great saving by pouring water on the ashes in the morning, and mixing them when wet, as you would mortar, then shaping to the size of a log—make the fire on the top, so that the ashes may answer for a back log. The ashes will burn and throw out an intense heat.

Those who burn coal may save one third by the following easy means: Let the coal ashes which are usually thrown into the dust bin, be preserved in a corner of the coal hole, and make the servant add to them, from the coal heap, an equal part of the small coal or slack, which is too small to be retained in the grate, and pour a small quantity of water on the mixture.—When you make up your fire, place a few large coals in front, and throw some of this mixture behind—it saves the trouble of sifting the ashes, gives a warm and pleasant fire, and a very small part only will remain unburnt.

Those who burn coal may adopt another method. In managing the fires during the day, first lay on a shovel of the ashes from under the grate, then a few coals, more ashes, and afterwards a few more coals, and thus proceed until the grate is properly filled, placing a few large coals in front. It will be found that ashes retain the heat better than coals alone—you will have less smoke, a pleasant fire, and a very little waste left at night.

The contents of the common snuffers may be used as tinder for lighting matches, &c.

The following ready mode of mending cracks in stoves, pipes, and iron ovens, may be considered as connected with the economy of fuel. The crack may be closed in a moment with a composition of wood ashes and common salt, made up into paste, with a little water, and plastered over the crack. The good effect is equally certain, whether the stove &c. be cold or hot.

ECONOMICUS.

For the *American Farmer*.

MANURE.

MR. SKINNER,

Of all the crops which a farmer raises, the crop of the farm yard is of the most importance. If I had plenty of manure, I should better know the value of a good plough, and might then easily find a profitable crop—whereas, on a poor farm, what is the use of a plough that two horses may easily draw eight or ten inches deep,

when you dare not plough half the depth, unless indeed you are able to live without the produce of your farm for five or six years—and what is the use of telling us of root crops, of which we may raise from four to eight hundred bushels to the acre on ground capable of producing forty or fifty bushels of corn, when you have not an acre of the farm that, with all the manure you raise, will produce twenty-five bushels. Some of your correspondents pass the word *manure*, when they have occasion to write it, as perhaps they do the thing—hold their breath and speed on—they pass it as if it was not to be increased or diminished by the attention or neglect of the farmer. I wish some of your correspondents would leave their opinions about the difference of implements, in which there is no difference—save, in prejudice, and give some details respecting the management and application of farm yard manure—When I have reaped the fruits of these opinions, I shall read the others. Many farmers of poor farms would be glad to have the following questions answered minutely:—

How many loads (cubic yards) of long manure may be expected, by the best possible attention, from each head of grown cattle, in the order generally kept on a farm, regularly confined, except during the grass season, and then at night? What number of hogs will make as much manure as a common cow? What is the best possible attention? And what proportion per centum, will the rotted bear to the coarse, or unrotted manure?

A YOUNG FARMER.

THE CUT WORM;

IT MAY BE BANISHED FROM OUR FIELDS BY A GIVEN COURSE OF CROPS.

TO THE EDITOR OF THE AMERICAN FARMER.

Wheatland, June 21, 1821.

DEAR SIR,

In consequence of Mr. Minor's letter which I have this moment observed in the 12th No. of the American Farmer, requesting information on the subject of the *cut-worm*, (that formidable enemy to the corn crop) I feel it incumbent upon me to furnish the following facts—

Until the year 1809, I had frequently sustained, in common with my neighbours, very great injury from the ravages of the *cut-worm*—at that time I commenced a regular six field rotation of crops, in the following order—wheat; corn; fallow; wheat; clover; clover; which seems to be the system intended to be adopted by Mr. Minor in his contemplated change of rotation. Since this plan has been in operation on my farm, I have never once been assailed by the *cut-worm*, while they continued to desolate contiguous fields with the most destructive and ruinous effect. So far then as the experience of twelve years may be considered as a sufficient test, I am warranted in recommending with confidence, the above system as an effectual preventive of the momentous evil so justly deprecated, and forcibly depicted by Mr. Minor. There is a circumstance however, which has occurred, which, though not strictly comprehended by the terms of the enquiry which I have deemed it my duty to answer, yet seems so intimately connected with

the subject, that perhaps it ought not to be omitted in this detail. In the year 1815, my crop of corn was laid waste and literally destroyed by what is here denominated the *rich-worm*—its ravages commenced with the coming up of the corn, and continued as long as there remained a plant to operate on, and I persisted in replanting and plastering until harvest. This worm is essentially different in its external form and colour from the *cut-worm*, it being a short, thick, white animal with a black, or dark coloured head. This is the only instance in which my corn has received injury from any species of worm, since the adoption of my present system of rotation—the same field is now in corn, and promises remarkably well being wholly untouched by the worm.

Mr. Minor is of opinion that "none but strong lands will sustain a course which then throws the three grain crops together in succession." I am certain that mine have not deteriorated by its prosecution for twelve years, during which time too, I have grazed considerably and been culpably negligent of all kinds of manure except plaster. Your land is in corn only once in six years, in wheat twice, and the balance of time in clover. One admirable tendency of the foregoing system is the suppression, if not extirpation of blue grass, an adversary more troublesome and potent than almost any other encountered in the operations of husbandry.

With esteem and respect,

I remain Dear Sir,

Your's truly,

HENRY S. TURNER.

Extract of a Letter from Maj. T. Emory.

"The Committee who awarded a premium for my Bull Calf, has not exactly quoted my description of his blood, as left with you previous to the show. He is largely in the *Irish*, imported by O'Donnell, and one-fourth in the breed owned by Gov. Wright, imported many years ago by Court & Co. Annapolis—and which, from their characteristics and appearance, very much resemble the Holderness. The error, which arose no doubt from inadvertence, consists in speaking positive of the Holderness cross. This Calf, at 16 months old, was weighed by your neighbour Hook, at his hay-scales, and weighed 87 lbs."

FOR THE AMERICAN FARMER.

REMARKS

On Tin, Slate, Shingle and Thatched Roofs.

In No. 4, of the American Farmer, a correspondent from Middleburg, inquires respecting the cost of a tin roof. I cannot give the information, but I can tell him what will form a much better roof, and in the end, I apprehend be as cheap as tin. I mean slates, which are now always used in this city, by those who are desirous of guarding against the danger of fire from external causes. Slate, moreover, is an article of home production; tin is not, and notwithstanding the disregard with which gentlemen to the south affect to treat such hints—it nevertheless is true, that it is the interest of every one to use home products, in preference to foreign manufactures and foreign articles generally. At-

tention to this point is becoming more and more necessary every day, for the precious metals are vanishing so rapidly from among us, to pay European debts, and to buy European and Indian superfluities, that in a short time unless we alter our conduct, a dollar or an eagle, will be as rare as during the American war. A letter directed to Mr. Griffith, (Slater) Philadelphia, will meet attention, and the cost of a slate roof, may from him be accurately ascertained.* I would advise your correspondent in preference, to come to Philadelphia, in order to see the slate roofs that have been put on many houses and public buildings. J. M.

* For such an estimate, we would feel ourselves on behalf of our patrons, greatly indebted to whoever would obligingly furnish it for publication. The slate roof is no doubt more durable than tin would be, and we would hope that its first cost may be cheaper; and if this be the case, as the article abounds, and is easily worked, we think that the fact need only to be known, in order to guarantee its more general use, and that too by our southern friends. But if we were to adopt, and felt disposed to push the argument of our respected correspondent home upon this portion of our fellow-citizens, we might feel ourselves constrained to advise the most of them to use shingles or straw. Upon the modes of thatching we may offer a few remarks at an early day, which we believe would be useful to those who prefer, or who are compelled, to make such roofs. EDITOR.

Communicated for the Telescope.

COLUMBIA, S. C. June 18.

MR. CLINE,

Sir,—I received a few days since, the following method of destroying weevils in flour, wheat, rice, and other grains, either in the barn or in barrels, of preventing or curing the rust in wheat or in cotton, which the writer says positively is owing to small insects; and also for destroying rats in barns, granaries and elsewhere.

This was sent to me as Chairman of the Board of Curators of the S. Carolina Agricultural Society, by Mr. Jas. McLain, of York district, South Carolina, and he very liberally allows me to publish it as often and in any manner I please.

Mr. McLain says, that the rust in wheat is occasioned by small yellow worms, to be found mostly in the hollow of the stock between the top joint and the head; they are so very small that they can scarcely be seen by the naked eye.

The rust in cotton is caused by multitudes of insects on the underside of the leaves.

I am well aware that sulphur has been frequently recommended for the above purposes; but whether it has had a full trial is doubtful, particularly in the manner and time of using it as directed by Mr. McLain, viz: by making matches of the brimstone or sulphur, and sticking them after being lighted, in the field infected by the insects between day-light and sun-rise when the air is still and the dew on the plants. This being done for three successive mornings will destroy the insects, and restore the wheat and cotton to perfect health and vigour. Now it is very possible that the smoke of the brimstone impregnating the dew on the plants may have a milder effect than if used under other circumstances.

One pound of brimstone is sufficient for ten acres each morning of wheat or cotton.

To preserve wheat, rice or other grains, and flour in barrels from weevils and worms, wet the inside of the barrel and turn it down over a burning match; let it stand about ten minutes, take it off and put in your wheat, rice, flour, &c. immediately.

To preserve corn, &c. in cribs and granaries from rats, weevils, &c. dig holes sufficiently large to contain a match of the sulphur of brimstone and let it stay about thirty minutes.

When we consider the enormous ravages and the great destruction caused to farmers, cotton and rice planters, merchants and others, by insects and rats, it excites surprise that certain means of destroying them have not yet been found out, or very fully and repeatedly tried. Should the sulphur, used according to Mr. Jas. McLain's method, prove effectual, his name deserves to be handed down to posterity with the highest honor and praise for the liberal and disinterested manner in which he made the communication.

I am, respectfully,
Sir, Your's &c.

N. HERBEMONT.

CHEROKEE ROSE.

COLUMBIA, (S. C.) June 5th, 1821.

John S. Skinner, esq.

DEAR SIR—On looking yesterday over the second volume of your very useful paper, the "American Farmer," which I have received a few days since, I noticed the paper of the 2nd of June, 1820, a communication signed Charles P. Rowand, giving an account of a "New and beautiful species of Hedge." I have not seen Mr. Rowand's hedges; but I have heard of them, and I know that the plant it is made of, is most invaluable for this purpose. The common name is "Non-descript," also "Cherokee Rose," and its botanical name is "Rosa Lavigato," not "Rosa Multiflora," as Mr. R. has suggested. It is a native of the state of Georgia. I can send you a few of the hips of it if you wish. The raising it from the seed may be an advantage to the acustoming it to your climate. The "Rosa Multiflora" would, no doubt, make a beautiful hedge; but its thorns being much smaller than those of the other, it could not, so effectually, answer the desired object. If this error has not yet been corrected, it may not be unnecessary to do so. It is much to be wished, that the real botanical names, when they can be found out, be always used in publications relative to plants recommended, or mentioned for agricultural, medical or other useful purposes. The want of such a name has caused many disappointments and discussions with regard to the Italian "Lupinella." Whereas, if it had been mentioned by its botanical name "Hedysarum Onobrichis," any person, by referring to a botanical book, could have learned that it is the Saint-foin.

The use of common or vulgar names, lead sometimes into errors that may be fatal; for the same plants in different countries, or sections of the same countries, are known by different names, and it very frequently happens, that a name is applied to a plant here, which, in another place is given to one, differing in every respect. I remember a very remarkable instance of a mistake of this kind; a young physician of this state, who had taken his degrees in Philadelphia, and had attended the late Dr. Barton's course of botany, speaking of the medical virtues of many of our native plants, spoke, after Dr. Barton, in high praise of the root of the "Podophillum peltatum," called in Virginia and elsewhere, by the name of May-apple, as a good substitute for jalap or ipecacuanha, I do not recollect which. In the course of

his practice he had occasion to use this medicine when it could not be procured, took the root of a plant known in this state also by the name of May-apple, the "Passiflora cærulea," which is very common, and a very troublesome weed in our gardens and fields; but is a totally different plant. If the root of the Passiflora had the desired effect, it must be attributed to a very uncommon chance, and it is as probable, that in other mistakes of this kind, plants of a very poisonous nature might be used. Also, when a patient is in pressing need of an active medicine, the substitution of an inert dose might be attended with serious consequences.

I know that every farmer cannot be a botanist; but I think he might be accustomed by degrees to botanical names, having them frequently, or occasionally under his eyes.

If you think any good can arise from the publication of this, you are at liberty to insert it; if not destroy it. I am very respectfully, dear sir,

Your obedient servant,

N. HERBEMONT.

GROUND BONES AND OYSTER SHELLS USED AS MANURE.

To the Editor of the American Farmer.

George Town, 11th June, 1821.

I observe in your "Farmer" of the 8th, a correspondent wishes to be informed, whether any experiments have been made in Grinding Oyster Shells to be used as a manure, instead of burning them into lime.—Some years ago, I remember a gentleman telling of a field of corn he had, and that it had been in corn every year for a number of years—that the field was directly on the bay, where there had been an Indian town, perhaps before the settlement of Virginia—that the whole field appeared like a bed of oyster shells—some rotting, some not, and many crumbled to pieces—that after a smart shower, where it had been ploughed, you could see nothing but shells and parts of shells, and that he thought that the more it was cultivated, the better it was.—I had heard of bones likewise being used as a manure.

I had, therefore, determined to make the experiment, below stated.—A tanner's mill near me had been idle for a year, or more—it had a stone floor, and iron cogs to a heavy wheel of the old fashioned form.—I collected all the bones I could, and ground them as fine as I could—and about forty bushels of oyster shells—they were as small as a quarter of a dollar: none larger, but a great deal of it very fine.

In 1817, I spread the bones, about 30 bushels over the tenth part of an acre, and 40 bushels of ground oyster shells over the same quantity of ground, and manured as much more.—The rest of the ground was not manured—it was a small lot in good heart. That part manured with dung, was by far the best corn—that with bones, next best, but very little better than the shell manured land, which was no better than the other part of the lot. In 1818, it was in oats and clover—the quantity of the oats I forget, but the clover failed. In 1819 it was in corn again, without any more shells, bones or manure—it was ploughed and harrowed twice each time before it was plastered, and worked five times, afterwards: the part manured with bones, shells and stable manure, were all equal and very fine, perhaps at the rate of 8 or 9 barrels per acre, when the other was about 5 barrels. In 1820 it was in oats and clover—this spring I manured the whole (except what had been manured

ed before) with the dung, bones and shells, with stable manure—the clover is now very fine but really the parts which were manured with stable manure, bones and shells in 1817, are by far the best covered with clover—and my impressions are, that when the same field is worked again, that the part manured with shells and bones, will be better, as the operation of the plough will detach sundry parts, now inactive from the bones and shells, and bring them into operation.

THE FARMER.

BALTIMORE, FRIDAY, JULY 6, 1821.

A great number of articles, various and valuable in their nature, have accumulated on our files.

In our next we shall present the remaining part of Mr. Pomeroy's essay on flax husbandry—Mr. Law's address to the Agricultural Society in Prince George's County—Some extracts from the proceedings of the United Agricultural Societies of Virginia; and probably a graphical description of the beautiful estate of W. S. esq. on the road from Winchester to Staunton, with an account of its products, management, &c. Also a letter from Thomas Marshall, esq. of Oakhill, Virginia, in reply to Mr. Minor, on the subject of the cut worm—and as many others as we can find room for.

The ease with which agricultural correspondence may be maintained, through a common medium, such as this journal, between gentlemen who could not otherwise interchange experience, is happily exemplified in this number.

A few weeks since a gentleman in Orange county, Virginia, takes occasion to deprecate the ravages of the cut worm, and to throw out some reflections and enquiries, as to the most practicable means of extirpating it—as soon as the course of the mails would have conveyed a private letter, he is promptly and courteously answered, without any affectation of diffidence, by gentlemen in different and distant parts of the state.

It were needless to dwell on the laudable dispositions evinced in thus frankly interchanging opinions. The profitable tendency of such a temper amongst intelligent agriculturists, is self evident, and we are happy in the honor of having afforded the means of indulging it, as we are sure it will be attended with lasting benefit to the country.

PRICES CURRENT.

Flour from the wagons, \$4 3/4—Whiskey from do. 23 cts. exclusive of barrel—Hay, per ton, \$17
Straw, do. 7 a \$8—Wheat, White, 85 a 90 cents—Red, do. 82 a 84—Corn, 40 a 41, brisk sales—Oats, 27 a 30—Rye, 40—God fish, per quintal, wholesale, \$3, retail do. \$4—New-England Beans per bushel, \$1 1/2—ditto Peas, 75 cents—Plaster in stone \$6 per ton—do, ground, \$1 35 per barrel, 33 cts. per bushel, \$8 per ton—New-Orleans sugar, \$9 to 13 50—Muscorado, do. \$9 a 12—American White Lead, \$12 50—Ground do. 13 a 14—Lined Oil, 75 cents—Feathers, 40 a 45 cents—Potatoes, per bushel, 65 a 75 cents—Shad, new, \$6—Herrings, \$2 a \$3 25, declining—Fine Salt, 55 cents per bushel—Ground Allum do. 55 a 60—St. Utes, 60—Cadiz, 50 a 55—Turks lime, 75—Live Cattle, \$5 a 5 50—Beef, 8 to 10 cents—Hams 10 to 12 cents—Middlings, 12 cents—Butter, 25 cents—Peas 50 cents per bushel—Eggs, 12 a cents—Cheese 8 a 10 cents per pound—Tar \$1 50—Turpentine, 1 87 a 2—Pitch 24—Rosin, common, 8 1/2, bright do. 8 3/4 per barrel—Varnish, 35 cents—Spirits Turpentine, 33 cents per gallon—Cotton, (good Upland) 14 a 15 cents; very dull—Rice 3 a 3 1/2 cents—Ship and Flooring Plank, \$35 a 27—shingles, best of a \$7, common, \$3 to 4 per M.
Maryland Tobacco—Common crop, \$3 a 3 50, plen ty—Fine red, \$6 a 10, scarce—Fine Yellow, \$18 a 20 very scarce.
No sales Virginia Tobacco.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua si bona norint
"Agricolae." VINO.

VOL. III.

BALTIMORE, FRIDAY, JULY 13, 1821.

NUM. 16.

AGRICULTURE.

ADDRESS

To the Agricultural Society in Prince George's.
By T. LAW, Esq.—THEIR VICE-PRESIDENT.

I REGRET that my apprehension of the fall of our great staple, tobacco, has been realised, and that the prices of all agricultural productions have so declined, that we meet under much discouragement. The object of our Society, to benefit by augmenting production, I foresaw could not be attained, unless we were enabled to cause by profitable returns for crops, good irrigation, good barns, good stables, good implements of husbandry, &c. From the moment our circulating medium was reduced from 110,000,000, to 45,000,000, it was evident to my mind, that farmers would, inevitably, become great sufferers; I have, therefore, lately deemed it my duty, to dwell upon the means to restore the middle class to prosperity, upon which we depend for consumption.

The long war in Europe, which commenced in 1792, prevented us from discerning our erroneous internal policy—nor until we were involved in hostilities did we discover, that by the increase of our paper circulating medium, though of a bad quality, and by the exclusion of foreign manufactures, we advanced with most rapid strides, notwithstanding armies and navies causing great destruction, without any production, and notwithstanding devastation by invaders, both of which may be computed at 40,000,000 of dollars per annum. It is unpleasant to hear us reciprocate congratulations at the prospect of another war in Europe: ought we to rely upon the calamities of other nations? Can the distresses of our fellow creatures produce any but a temporary suspension of our embarrassments? Ought we not rather to adopt some permanent system, to render us independent of the casualties and caprices of other nations, and for the exchange of our indigenous productions for those of other climes, that superabundance may be useful to all? As brothers, as moral beings, and as christians we ought all to wish for universal peace, to enjoy the advantages of amity.

The fundamental error in our financial system is, that we rely principally for a revenue upon the importation of foreign manufactures, the purchase of which withdraws from us the money required to keep our own citizens productively employed. Strange inconsistency!—the nation is to be impoverished as the treasury is enriched! Internal taxes have this superiority over duties—1st. the government is induced to make the people rich—2d. the money remains in the country, and is thrown again into circulation; but, when foreigners draw off the blood of the social system, industry is paralysed and inevitable decline ensues.

Cotton has fallen from 24 to 12 cents—say that the cost of producing amounts to 9 cents; the cultivator, at the first price, gained 15 cents per pound; and, at the latter price, only three!—think what a lamentable change, from 1500 to 300!—and consider, that cotton may fall still lower. The price of wheat is reduced from two dollars, to below seventy cents—the former price gave a profit of more than a dollar—the latter price causes a loss, unless the soil be very productive, and the season very favorable: my estimates may not be very exact, but are sufficiently so to cause serious uneasiness; and, I should hope, calm deliberation for a remedy.

If Congress had created a uniform national currency, as suggested by our late President, Mr. Madison, (whose wisdom and worth are universally acknowledged,) and, if it had subscribed to canals,

roads and bridges, and other improvements; that currency, thus thrown into circulation, would have reverted to the treasury for land, &c. It has pained me, to see the price of the public land lowered to \$1.25, and claims relinquished, for land sold, amounting to 22,000,000, and the sales cancelled, and a loan created, and injurious retrenchments made—all of which might have been avoided, but for the reduction of our circulating medium above mentioned.*

During the war we saw canals, roads, bridges, factories, mills, and a variety of improvements made by individual subscriptions, because money supplied the means. Think how a five dollar note passes through five person's hands perhaps in a day, and repeats its vivifying operations three hundred days in the year—money, whilst kept, is unprofitable, and therefore is rapidly converted into some productive capital.

Two enlightened practical surveyors, (one of whom was lately a distinguished senator from Pennsylvania,) have shewn, that a canal communication may be completed from the navigable water of the Potomac, to Cumberland, for 2,500,000 dollars—and, to prove their sincerity, they engaged to accomplish this important undertaking for that sum. Their estimates of saving by conveyance of products, and of increased production, would make the national gain 33 per cent. Consider also the advantages of this communication with the interior, should the mouth of the Mississippi be blockaded by an enemy—I mention this canal particularly, because connected with our own state, and two neighboring ones. This government has resources enough, without borrowing, to cause immediately, by a good policy, four or five such facilities for the transportation of our grain, coal, lime, iron, slate, &c.—and for the saving of men, horses, waggons, and time. Public works are permanent memorials of the existence of a wise government; and benefit, for ages, the farmer as well as all other classes. Mr. Monroe, our judicious and upright chief magistrate, recommended, in one of his first communications, the raising of the price of our public lands. The nation possesses 400 millions of acres—bad, to avoid the charge of exaggeration, I will admit only 200 millions; these at four dollars, would amount to 800,000,000 of dollars, and might, with ease, be converted into income, yielding im-

* Our population now increases above 300,000 each year—suppose the old states to retain one half, and that the remaining 150,000 go to the states and territories, where government land is to be sold, and that 10,000 of these purchase each 100 acres of land; the amount of acres sold will be 1,000,000, which, at four dollars will amount to	\$4,000,000
Suppose the inhabitants now in the states purchase the same quantity,	4,000,000
Suppose, lastly, that men of fortune in the eastern states purchase for their sons one fourth as much,	1,000,000
And European emigrants,	500,000
This would amount to	\$9,500,000

Let the sales of the last five or six years be adverted to—but, if this calculation be even deemed excessive, let it be considered how rapidly the population increases, and how very soon it will be far below reality, should there be only money to purchase with.—Were there a sufficiency of money, it would be as easy to raise four dollars per acre, as during the present scarcity \$1.25—land also becomes annually more valuable, as less remains every year to be occupied—few consider, that in a century our population will have increased ten-fold; and that unless this population have money to buy with, they must overflow the territories as squatters.

provements similar to the canal of Languedoc, and canals in England, whilst the nation would be also benefiting. When there is a sufficiency of money, if property be secured by good laws, every kind of improvement will be introduced, and the middle class will increase—consumers will pay retailers—retailers will pay wholesale dealers—and the wholesale dealers will pay manufacturers—and, all these will pay the land holder for food, clothing, fuel, hides, tallow, &c. This nation, in a century, will have a population of 100,000,000—whence is the requisite specie to come, if we injudiciously adhere to a specie basis?—how also are we to command it, and how are we to retain it? It has grieved me, to find my predictions realised, that the government would be compelled to borrow money, even for its very limited expenditures. Without money, importers giving bonds for duties cannot liquidate them—without money lands cannot be paid for. I pretended not to superior sagacity, when I quoted the old Roman axiom "Ex nihilo nihil fit." To avoid tedious details, permit me to recommend to your perusal Essays under the signature of Genatmosin, "The Farmers and Planters Friend,"—full of strong facts, and profound deductions.

I have termed bank notes a bad currency, because the borrowers relying upon a lasting accommodation, were ruined, when called upon, after 60 days, for curtailments, before their enterprises could enable them to reap any benefit: prior to the multiplication of banks, loans were made on bonds and mortgages, and the lenders were glad to continue them, if interest were punctually paid, and the same mode would be renewed, if the government's national notes were always kept in circulation.

It is said that specie is in plenty, although bills upon England are at eight per cent—this strange phenomenon I have investigated, and find, that the temporary influx of specie is from Europe, to pay for our stocks—but, that a reflux is commenced, and will increase as the importation of goods is augmented, to take back our specie—thus, as the government creates stocks, they are exported, and our debts, to foreigners, increase. A new class has lately appeared of money dealers and exchange brokers, who make a constant fluctuation of gold and silver. How different would have been our situation, if the Congress, after our war, had created a national currency—the rate of interest would have been so lowered, and the stocks would have so risen, that they would have been retained at home—and the middle class might have been producing 100,000,000 of dollars per annum more than they now do—and their consumption would have made agriculturists comfortable, if not rich. Few persons consider how ten manufacturers may support ninety other persons, supplying the manufacturer and themselves by mutual interchange. Money not only produces material, but intellectual riches. Authors, painters, engravers, paper makers, printers, book-sellers, &c. are all supported by money; and by post letters are conveyed, to

"Speed the soft intercourse from soul to soul."

* It grieves me to learn, that the Post-Office Revenue declines, notwithstanding increased population.—If the establishment be reduced to make expenditure balance income, think what a diminution of pleasure by the relinquishment of intelligent and affectionate communications, of newspapers giving amusement and instruction. Our Post-Office establishment was heretofore our boast, jointly with the freedom of the press—if the number of newspapers and of letters sent diminish, there cannot be a stronger proof of impoverishment, and of decline into an ignorant, comfortless rude state of society.

In short, civilization, security, and all social enjoyments, are produced by money, which is as necessary for useful occupation, as water to circumvolve the wheels of machinery. Take away the circulating medium, and society must retrograde to the semi-barbarous state of barter.

The arguments which the petitioners for the remission of the 22,000,000 of dollars, from the purchasers of public lands, so successfully used, may be urged, with equal truth, by almost every land holder of the old states. Their people have been seduced away by the temptation of low priced lands—thus hands become scarce and dear, and our lands fall in value, and our manufacturers are forced away by the want of money.

The scenes of misery around us damp our energies, and impair our health—if we walk the streets of the city, the auctioneer's discordant bell announces the sacrifice of some wretches' property. If we visit the court house we are saddened, by being informed of the multiplication of suits, and of criminal cases; if we repair to Congress hall, we are humiliated by debates about defalcation of revenue, or about ruinous retrenchments—or about loans—or about remission of debts due to the nation. I assert, that all these painful circumstances are solely attributable to the diminution of our currency—permit me, in corroboration of my reasoning, to call your attention to a most important fact.

On the 3d of July, 1813, a guinea in England was worth £1 7s 8½d—and on that day the Bank of England notes, in circulation, amounted to £26,314,890 sterling—on the same day next year, guineas fell to £1 2s 4½d, although the Bank notes had increased to 29,592,900. The increase of paper money enabled manufacturers to employ more hands, and to export more goods to the continent of Europe, and to bring back precious metals. Had the parliament, under a mistaken idea, that the quantity of paper had driven away the specie, and become depreciated, ordered its diminution, industry would have been paralysed, and a dreadful shock would have been felt throughout the wonderful island. Contrast this conduct with our precipitate order to resume specie payments, and the two results: they ought to make a deep impression on our political economists. I could produce other facts, corresponding with these—for the same causes, *exterior paribus* will always produce the same effects: the laws of God never fluctuate.

We have not suffered by drought, by pestilence, or by civil war, or by despotism, or by burdensome taxes—yet we are all impoverished, except a few stockholders and money lenders. It is exultingly announced, that one of our new states has increased in one year from 30,000 to 140,000—how is this occasioned but by emigration from old states? We boast of new states, created almost every Congress—Is it beneficial to the nation, to scatter our population over an extensive continent, and to drive our citizens from their vicinity to seaports, into the interior, a thousand miles from a mark? If England and Scotland, not larger than Virginia, contain a population exceeding all ours, spread over the United States—by machinery its inhabitants obtain work; equal, it is estimated, to one hundred million of hands in our young country, whatever saves labor is more particularly desirable. Manufacturers are capable of more subdivision of labor, and of more mechanism, and of more aid by water, steam, &c. than agriculture.* Although that nation must consist principally

* The Waltham manufactory, near Boston, employ 300 persons, and makes 1,250,000 yards of cloth—which, if estimated at 20 cents per yard, amounts to 250,000 dollars: from this the price of freight, and of the raw material, must be deducted, and the remainder continues in the town and neighborhood.—If this Cotton had been manufactured abroad, and returned to us for sale, the balance against us must have been paid for by specie or stocks—"Ab uno disce omnes." Can we, by the latter mode, ever obtain accumulations of capitals? may we not be obliged rather to pledge our crops before hand, to pay old debts, and to receive a small advance just to relieve our necessities?

pally of a few land holders, and numerous vassals, which is merely agricultural, yet there is a sect amongst us adverse to manufactures—nay, such is their antipathy to them, that they write against coffee, by the same reasoning they would dissuade us from distilling our rye into whiskey. I have read in a newspaper, that shirts are now made by machinery, with ruffles complete. Ought we to prefer these, not to save our wives and daughters from trouble, but to promote commerce? I put this question seriously, because I have witnessed a preference of foreign articles, to those made at home, because it enabled foreigners to buy our staple.

To any one who would rather be supplied by goods from a foreign state, than from one of our own states, I say "utter not the anti-fraternal, anti-patriotic, and anti-self-interest sentiment; the increase and success of our fellow citizens, strengthens us by numbers, and by resources—they contribute to our revenue, and to our enjoyments—they repel invasion, and are ready to suppress insurrection. Can we benefit, by driving back to Europe 20,000 industrious intelligent, and useful men, who annually sought an asylum here, and who came to augment our intelligence, wealth, and comforts?—are you yourself enriched during the last six years? Go, re-peruse the valetudinary address of our Washington, and magnanimously discard local bias, and farmers' prejudices—remember that true charity begins at home, and that intancy requires nursing and cherishing. The agricultural state is only one step beyond the hunting, piscatorial, or pastoral; the manufactural is essential for civilization and happiness—suspect not folly and baseness in those who differ in opinion with you, or that the representatives of the people would pass laws injurious to the general welfare—protection solicited is not a monopoly; for all may avail themselves of it." In two or three essays of the Guardian, a pardonable objection to manufactures, by unenlightened farmers, which then existed, was ably refuted; and the writer, to confirm his reasoning, gives the following anecdote: Louis the XIVth, on expressing his surprise, that the Dutch could resist such superior numbers; his minister replied—"Sure, you have driven away your protestant manufacturers, by the edict of Nantz, and your cultivators are penniless, and cannot pay contributions for troops, tents, arms, ammunition, &c." That farmers should be ignorant and short-sighted a century ago, is not wonderful, but that such a prejudice to the middle class, which consumes what the soil produces, should now appear, is most pitiable—Great suffering must plead my apology for these remarks.

* Very few persons calculate the superior advantages of a large capital, which enables the possessor to undersell those commencing with small capitals.—Say that A. had 200,000 dollars, in buildings and purchases of his own; and that B. has 50,000 employed on loan—and that each, by his sales, obtains 12 per cent.

A's account will stand thus—	
Received profit on sales on 200,000, - - -	\$24,000
Deduct family expenses, - - -	2,000
Remains to increase capital, - - -	\$22,000
B's account—	
Profit on sales on 50,000, - - -	\$6,000
Deduct interest, - - -	3,000
Family expenses, - - -	1,000
	4,000
Balance to pay off debt, - - -	\$2,000

Suppose large capitalists chuse to content themselves with three per cent, those with inferior capitals must be undersold. The large capitalist can also afford to give credit. If two nations started with equal means, equal laws, equal population, and equal climates, the expense of freight, &c. would be sufficient protection of manufactures—but I am convinced, from historical facts, and from reasoning, that since modern inventions, protection from foreign competition ought to be given in certain cases.

My disposition leads me to rejoice with those that rejoice—and, at this season, when all nature smiles, and hope ought to predominate, I should have been glad to find cheerful countenances, and to have joined in congratulations on the prospect of abundant harvests—but, of what benefit are they, when we can scarcely find a sale on any terms?

It would take up too much time were I to explain the numerous errors into which mankind have been led by influential writers.—The ancients deemed the mechanic arts and commerce disgraceful, and Aristotle recommends the exclusion of merchants and tradesmen from the rank of citizens—amongst the moderns, several system-mongers have arisen in political economy. In France, a preference to agriculture long prevailed, introduced by one Quesnay, and the most able men sided with him, under the denomination of economists. After this arose the mercantile system, with the view of bringing the precious metals into a country, by the balance of trade; hence voyages to discover gold and silver colonies, &c.—this indeed is only a branch of the general delusion which induced men to imagine that wealth only consisted of the precious metals.—Adam Smith first opened our eyes to the advantages of internal industry. We now are beginning to understand that all useful occupations produce wealth, and we now are beginning to understand that the basis of a well established free government, which preserves good faith, has an exchangeable value, and that the promissory note of that Government, convertible at the option of the holder into a bond, and receivable by a government in all payments to it, at the rate at which it was issued, has a similar exchangeable value—and we are now beginning to distinguish between the intrinsic and inferior value of gold and silver in ingots, to that given to them by government as coin; the former having a fluctuating value, compared with the fixed and stamped value.—On this copious subject I may during this summer, deliver my observations at large to the public.—I have here very briefly adverted to the necessity of promoting all descriptions of productive industry.—When all are encouraged, self-interest will make individuals prefer the most profitable occupations, and thus dearth from scar-

* The Waltham Factory, near Boston, used in 1819, 1400 bales of cotton, containing 3300 lbs. each—or 420,000 lbs. and made 1,250,000 yards of cloth, with 200 bands, 260 of which were females. The profit of the owners, it is said, exceeded twenty per cent—the cloth, if valued at twenty cents, amounted to \$250,000. Suppose 1000 such established throughout the United States, the produce would amount to \$250,000,000. It may be argued, that labour would rise—but on the other hand superior skill, superior tools, and low interest, would, in a great degree, if not totally, compensate for that; the owners moreover would be content with eight or ten per cent profit, if interest were reduced to four or five per cent. Competition is always beneficial by lowering prices. Think how this creation in the United States would employ thousands, and tens of thousands in various ways—when there is a sufficiency of money to set men to work, those well paid have a variety of wants, and consume more in every way. The farmer produces the materials, whether cotton, wool, leather, horn, dyes, &c.—and feeds the workmen who convert materials into use—surely it is most desirable to see industrious producers well supported, and enjoying the comforts of life. How contracted is the view of that farmer, who argues that all citizens now eat, and as months will not be multiplied, what benefit can accrue by increasing manufactures! I blush, to find that such short-sighted beings publish such sentiments; the prosperity of farmers in any country, may be calculated by that of the quantum of the middle class, compared with that of cultivators. Wars, and newly discovered products, may give a temporary partial benefit; but permanent prosperity must depend upon having a circulating medium not fluctuating, causing a fixed low rate of interest, and encouraging all kinds of improvements throughout the country—a plenty of able consumers, able and near markets, must make farmers wealthy.

city will produce cheapness by abundance;—thus we shall learn the all-wise benevolence law of the Creator and Ruler of the Universe, that the individual's interest and the general interest, are one.—The landholder need not apprehend desertion of the soil—there is a natural preference to rural enjoyments and territorial independence. The merchant, the manufacturer, the soldier, the sailor, in short persons of all professions wish to retreat in the decline of life, to an estate.—What a thine is before me! but I must refrain. In Maryland we only want the middle class to make farmers happy and prosperous; we have numerous rivers and streams, and a variety of advantages—yet, but for Baltimore, which has risen by commerce, our population would have declined. If exports diminish, we shall be poor indeed. We ought to produce our own silk and our own wines, oil, opium, and every other article congenial with our various soils and climates—hut above all things, we ought to increase the middle class—to it we owe our freedom, our civilization and all that is desirable.—The employment of women, and of children in manufactures, as the Edinburgh Reviewers observe, increases marriages in Great Britain, and augmented population too fast. Thank Heaven, we do not require schemes to discourage conjugal happiness. We have a vast expanse of rich territory. We have the knowledge of the old world (which was slowly, expensively and difficultly acquired) to apply at once to our new world.

Our present distresses may produce a system permanently beneficial, as the torments and convulsions of nature frequently discover mines and other hidden treasures—that our miseries may have that effect, is “a consummation devoutly to be wished.”—The idea of saving for posterity was first introduced by money; thus we are indebted to money, for the increase of capitals, the accumulation of which constitutes national wealth. To money we are indebted for our inventions.—Every age has produced men of genius, but they wanted encouragement, and could not transmit their discoveries as a legacy to future generations—and knowledge was buried with them. If there be a man who hates the comfortable enjoyments of a good house, of good food, of good furniture, of a good library, and of good clothing, and of a good garden, let him discourage what he terms luxuries. I like to see every thing rising around me; I wish to promote improvements and to make experiments, and to have money to subscribe to public works, and money to lend and to give away—poverty causes misery and crime.—Luxury and extravagance so much exclaimed against, will never injuriously increase, but under a corrupt government—I suspect not the representatives of our free people of profusion, but rather fear the extreme of parsimony to please popular prejudices—that they will attend to the landed interest, if we farmers state our situation and sentiments, cannot be doubted—our apathy hitherto has surprised me. On the best inclinations, and on the wisdom of Congress I rely.

I will not apologise for this apparent deviation from our agricultural pursuits; for if strictly considered, it will be found that my object is to promote the cultivator's interest. The Father of All in his bounty, so amply requires the industry of the cultivator, that one third or one fourth of his produce can maintain him—the remainder is given to support others, creating other things to gratify his wants by exchange—whether for corporeal or mental enjoyment.

My neglect on this occasion of agricultural information cannot be regretted, as our President has such superior theoretical and practical knowledge; indeed, it was my intention on this account, to have avoided all communications at this meeting, but I am anxious to behold prosperity once more.

Zeal for the public good resistless sways,
My heart still dictates and my hand obeys.

THOMAS LAW.

TOBACCO FLY.

The tobacco plants in this vicinity, during the past dry weather, have been much injured

by the fly, or bug. I have tried many things for their destruction—the most efficacious is snuff, or trash tobacco finely pounded and sown whilst the dew is on the plant—this entirely destroys or causes the fly to leave the bed, and being a powerful manure, adds to the vigour of the plant. If this is not generally known, it is worthy of publicity.

I am sir, yours, &c.

E. S.

West Friendship, May 21, 1821.

From the *Massachusetts Agricultural Journal*.
ESSAYS ON FLAX HUSBANDRY.—By S. W. Pomeroy, Esq. first Vice-President of the *Massachusetts Society, for promoting agriculture*.

ESSAY III.

Weeding is considered in Europe, and by good husbandmen in this country, as necessary to secure a good crop of flax, which is a very tender plant when young, and more easily checked in its progress by weeds than any other. It is not supposed to be injured by the clover and grass sown with it; on the contrary the *Flemish farmers* think them beneficial, by protecting the tender roots from drought and keeping the weeds under them. It should be carefully weeded when the plants are three or four inches high; they are not then injured by the labourer going barefooted over them.

CHOICE OF SEED.

That of the last years growth should be obtained if possible. The usual marks of good seed are, that it be plump, oily and heavy, of a bright brown color, sinking readily in water, and when thrown into the fire to crackle and blaze quick. A very simple method of trial is to sprinkle it thin between two pieces of wet paper, which plunge in a hot-bed or dung-hill, and in less than twenty-four hours the proportion that will vegetate can be discerned, which should be ascertained in order to regulate the

QUANTITY TO BE SOWN.

On this head no particular directions can be given, as it depends on the various qualities of soil, goodness of seed, &c. The rule for seedling small grains is reversed; flax requiring to be sown thickest on rich soil, as not more than one stalk is wanted from a plant. In England and Scotland, never less than two, or more than three bushels to the acre is sown. Two and an half is the most usual portion. In Flanders and Ireland seldom less than three bushels are sown, except when seed is an object. Thick sowing is to obtain fine flax. In this country it will be important, at present, to sow at such a rate as will insure good crops of each; and experience only can determine the exact point.

If sown very thin, too many lateral branches will be thrown out; each producing a boll, or pod affording more seed, but shorter and inferior flax. If sown too thick, the plants will draw up weak, with a single boll on a plant, and subject as our climate is, to heavy showers and thunder gusts, very liable to lodge: one of the greatest dangers a flax crop has to encounter. The commissioners for promoting flax culture in Scotland, considered it as practicable, and strongly recommended that the system should be so conducted, as to obtain good flax and good

seed at the same time. It is so viewed in Ireland, among the more extensive cultivators, except when wanted for *fine linen, cambric, lawn, &c.* Dr. Deane, in the “*New England Farmer*,” a work of great merit published some thirty years since, when flax culture was more attended to than at present, recommends from six to seven pecks. It is probable that six pecks is the least, and two bushels the extent that should be sown to obtain the most profitable results, till the demand for seed is considerably lessened. (11)

SOWING.

The seed should be got in as early as it is possible to prepare the ground, Dr. Deane observes that a slight frost after the plants are up will not injure them. For no crop is it more important that the seed should be equally distributed. Fortunately what has long been a desideratum is now attained. A machine for sowing small seeds broad cast, with perfect regularity, great expedition, and in any desired quantity, has lately been invented, and performs to great satisfaction. (12)

PULLING.

This should be performed as soon as the leaves begin to fall, and the stalks shew a bright yellow color, and when the bolls are turned a little brown. The seed will continue to ripen afterwards. When the flax is lodged it should be pulled immediately, in any stage of its growth, or it will be entirely lost; great care is requisite in sorting the different lengths and keeping them separate till after the flax is hackled or much waste will ensue in that process.

SAVING SEED.

As soon as the flax is dry enough to put under cover, the bolls should be *rippled*, as it is termed. A comb resembling the head of a rake but with teeth longer and nearer together, made of hickory or oak, is fastened upon a block, and the flax taken in parcels no larger than the hands can firmly grasp, is drawn through, and the bolls ripped off—attention to sorting at the same time should be continued. The bolls are to be riddled and winnowed immediately; spread thin on a clean floor or on sheets in the sun, and when sufficiently dry and beginning to open, threshed. By this method the *four seeds* are completely separated with little trouble, and good clean seed is ready for an early market, often the best, without the use of expensive machinery to make it so.—Here the operations of the farmer ought to end! The PROCESS OF PREPARATION being

(11) The demand for *linseed oil* must increase with the population for some time to come, as there appear no indications that the people will forsake their household duties, CLAPBOARDS and PAINT, till the soil is much more denuded of its timber; even in those districts where the roads and fields are encumbered with suitable materials for permanent, cheaper, and more elegant buildings.

(12) Bennett's Machine for sowing broad cast, a description and drawing of which is given in the *Memoirs of the Philadelphia Agricultural Society*, vol. 4, and *Am. Farmer* vol. 2, with ample testimony of its usefulness. It is pushed forward by a man like a wheel barrow, and will sow more than one acre in an hour, unimpeded by wind or light rain. They are for sale at Harrison and Earl's Repository for Agricultural Implements in the city of N. York, and Robt. Sinclair's manufactory of implements in the City of Baltimore.

foreign to, and unconnected with his other pursuits; and which has been the greatest objection to extensive flax culture. Can there be any reason why the farmer is to prepare his flax more than the hides of his cattle which he sends to the tanner? They are both chemical processes; and to dissolve the glutinous or resinous substances by which the fibres are attached to the stem without impairing their strength, is perhaps as *critical* and requires as much care and judgment, as to extract the animal juices from the hides, and fill the pores with *tannin*! In short, the flax grower and flax preparer and dresser should be distinct professions. They are said to be so in Flanders and Holland, and were extensively so in Scotland, where the farmer sold his flax on the ground, or in sheaves at his barn or rick.

The preparation of flax by steeping is very general in the great flax growing countries in Europe, but it is not quite finished in the water. It remains spread some days on the grass, which is necessary to render it soft and give that *silvery* appearance so desirable. The destructive process of *dew rotting*, is most commonly practised in this country, and when water is resorted to, it is at an improper season, and the process imperfect; which is the cause of its being so *harsh* and *brittle*. Perhaps no part of the system requires such an allowance for difference of climate. In the humid atmosphere of Ireland, it is not very material when it is spread, but in this climate, when exposed to a July or August sun, every drop after a shower, becomes a *burning glass*, and literally scorches the fibres; besides such a highly putrid fermentation as will then take place in the water, though it separates the harle more speedily, not only injures it, but communicates a *stain* that renders the process of bleaching much more tedious and expensive.

The flax should not be put into the water till about the first of October, and remain from 10 to 14 days, according to the temperature of the weather, and should be taken out before the fibres will separate freely, spread on the grass when the frost will very much assist the operation, and the flax exhibit a *gloss* and *softness*, that it is impossible to give it otherwise. The following method of preparing hemp will apply with great force to the point under discussion. During the late war an experienced ship-master in Connecticut, and who was also a good farmer, raised a crop of hemp—as soon as it was dry enough to be stowed away, it was put under cover and remained till October; was then put into clear soft water, till the fibres would separate with some difficulty, when it was spread on the grass; the frost completed the operation, and when dry it was immediately secured.—There was no putrid fermentation to deteriorate the harle, nor was it mildewed by being exposed to the weather, and when dressed, exhibited that fine *silver green* hue by which the best Russian hemp is distinguished; (13) and when *worke*d up, was pronounced by the rope makers to be equal to any hemp ever imported!

(Here is a lesson for our *western brethren*, that is worth more to them than real mines of silver. *Clear, soft, stagnant* water is preferred in Europe. A canal, forty feet long, six broad, and four deep, is said to be sufficient for the produce of an acre of flax, at one time. It should be formed on a clay or some holding soil, where the water from a spring or brook can be conducted in with convenience, the expense would not be great, and on most farms suitable sites may be had. May not boiling or steaming be found the most advantageous process of preparing flax? The very superior samples of thread exhibited at Brighton in 1818, for which Mrs. Crowninshield, of Danvers, received a premium was spun from flax prepared by *boiling*! It appears by the “*transactions of the Swedish Academy*,” that a method was practised in Sweden, of preparing flax to resemble cotton, by boiling it ten hours in salt water, spreading on the grass, and frequently watering, by which it becomes soft and bleached. Boiling or steaming will not appear very formidable or expensive when we examine the subject. A box twenty feet long, six feet wide, and four deep, well constructed with stout plank, a boiler from which a large tube extends into, and communicates with the water in the box, will boil the produce of a quarter of an acre in a day, that is, if we allow double the room to boil in that is required for steeping. A steam pipe instead of the tube, and having the top of the box well secured, would permit the process of steaming to go on. It is probable that by either method, *grassing* will be necessary to obtain soft flax. The yarns of which the sailcloth is made at Paterson, are all *steamed*. The navy board expressly forbid their being boiled in an alkaline lye, as is usual in most manufactures of linen. It is from this precaution that their canvas has the pliable, oily feeling, which so much recommends it. It should not be lost sight of, that by boiling or steaming much time and expense will be saved in bleaching.

We arrive at the final process, *DRESSING*, and in this our climate gives a decided advantage over Ireland, Flanders, or the north of Europe, where the flax is dried on hurdles over a peat fire, in ovens, or kilns, requiring great care in regulating the heat to prevent injury. All this trouble and hazard is obviated by our dry atmosphere and keen north-west winds. Dr. Deane estimated the expense of dressing flax by hand at one third the product. I believe the present price does not much vary from his estimate. A respectable gentleman from Dutchess county, New-York, informed me, that mills or machines impelled by water, have been erected there, that break and completely dress the flax for a toll of one tenth! It is said one or more of them are in operation in the western part of this state. These mills were invented in Scotland, and are now said to be brought to great perfection. They are erected in all directions, in the principal flax districts in Ireland, and notwithstanding the low price and limited demand for labour, are resorted to by the poorer classes of people, the dressing by hand being mostly abandoned. There are machines in England that dress the flax immediately from the field, *without any preparation*

whatever. An account of them may be found in the 5th volume of the Massachusetts Agricultural Journal. It appears, by the report of a committee of the house of commons, that in 1817, they were in successful operation. A man and three children impelled the machines and dressed sixty pounds a day. We have no information of any further improvements.—Should they be susceptible of the application of water or steam power, in any degree proportionate, the advantages may be incalculable, but, in the present enquiry, we place these machines, however desirable, entirely out of the question.

PRODUCT.

It is not uncommon in Great-Britain and Ireland to obtain eight hundred pounds of flax from an acre! Six hundred pounds is estimated, in some districts, as an average; but it should be observed, that little, if any seed, is obtained. The average crop in New England, as far as our information extends, cannot be estimated at more than two hundred pounds, or six or eight bushels of seed. (We do not include the rich bottoms on the Connecticut and some other rivers.) Dr. Deane was of opinion that four hundred pounds might be calculated on with proper management.

We think that four hundred pounds of good clean flax, and eight or ten bushels of seed, may fairly be assumed as a medium crop on favourable soils, where the culture becomes such an object as to make other farming operations subservient to it, and due attention is paid to change of seed.

Those who grow flax to any extent are of opinion, that the seed, at the price it has been for some years past, pays for all the labour bestowed on the crop to the time the flax is ready to be prepared or rotted.

If we are correctly informed, flax of a fair quality cannot be imported from Ireland for less than *fourteen cents* per pound. And the price of the best of Russia flax delivered on ship board at St. Petersburg, is ten and a half cents per pound. The quality called “*twelve-headed*” costs nine and an half cents on board.

The quality of flax raised in this country varies more than any other product; and of course the price, which is from six to eighteen cents. The medium about ten cents per pound.

It must be acknowledged, that no great exertions can be expected in the pursuits of any people, till “the prospect of reward sweetens their labour.” And I anticipate the question that some may be disposed to ask, before they have finished the perusal of these essays. Where is the farmer to find a market, if flax is extensively cultivated? We will ask where could the planter have found a market for his cotton if machines had not been invented for spinning it? And how could he have supplied it, if the labour of two thousand hands had been required to clean it of the seeds, that is now performed by the *cotton gin* invented by Whitney? We have shown that the expense of dressing flax has been reduced from one third to one tenth of its value; (14) and it is a fact

(13) The best *Riga hemp*, supplied for the British Navy, is prepared by steeping; during which it is shifted three times.

(14) The usual toll for ginning cotton in Alabama, we are informed, is one-twelfth.

well established, that there are now in the country, machines for spinning *flax*, that perform as well, and more expeditiously, except for the finer threads, than those for spinning cotton! The Paterson *sail cloth* is fabricated entirely from yarns spun and twisted by machinery, assisted by as little manual labour as cotton machines. In those manufactories are six hundred spindles. In the state of New York and in Pennsylvania about three hundred more are employed for sewing thread, sheetings, bed-ticks, shoe thread, twine, &c. The expense of labour, after the flax is hackled, in attending a machine of twenty-four spindles for spinning common shoe thread is *thirty-three cents* per day, spinning on an average twenty-four pounds a day, or one pound a day for each spindle; equal, it is said, to the production of a cotton spindle for five or six days!

Can any thing be wanting but the application of power looms for weaving linen, to place the manufacture nearly upon an equality with cotton? And is there any doubt but they can be so applied?

The perfection of cotton spinning machinery, and the invention of power looms, with such improvements as are exhibited at Waltham, it is well known are about to produce an entire revolution in the India trade! If they can stop the spindle and the shuttle of the Hindoo, who is supported upon a handful of rice a day in a climate where little is required for clothing or shelter, what must be the effect of machines corresponding in the *linen manufacture*, upon the Russian and the German? There is probably at this moment, a million tons of American shipping clothed with Russian canvas! What, but the raw material of good quality, is required to elicit capital, to manufacture in our country sufficient for this supply immediately, and in a few years even to compete with European nations in the linen market?

The exportation of linen from Germany to North and South America, has been, and is at present, of vast amount! The single province of Silesia has sent in one year to Hamburg and other ports, linens to the value of nearly five millions of dollars to be shipped, by the circuitous route of Cadiz, to the Spanish colonies.—These customers are at our doors. The United States possess the "GOLDEN GATES of this commerce," and with exertions well directed to her agriculture, Europe will be obliged to surrender the keys.

Brighton, 27th March, 1821.

FOR THE AMERICAN FARMER.

General Meeting of Delegates of the United Agricultural Societies of Virginia.

EXTRACT FROM THE JOURNAL JUNE 11TH.

At a general meeting of Delegates of the United Agricultural Societies of Virginia, held on the 11th and 12th of June, 1821, at French's tavern, in Petersburg—Present

Philip B. Thweatt	} Delegates from the Agricultural society of Prince George.
Wm. A. Harrison	
Edmund Ruffin	
Richard Eppes	} of Sussex
William Harrison	

Richard Cocke	} of Surry
Richard Field	
Roger A. Jones	} of Petersburg
Benjamin H. Rice	
Thomas Robinson	
Daniel C. Butts	} of Dinwiddie
Thomas Field	
Edw. L. Pegram	
Arthur Smith	of Isle of Wight

Report was made of the adoption of the amendment to the 11th article of the constitution, (recommended at the last meeting,) by the Societies of Prince George, Sussex, Surry, Petersburg, and Isle of Wight; which, forming the requisite majority, the amendment proposed is therefore a part of the constitution. The 11th article as amended, reads thus, "*The Delegation shall have the power of offering and adjudging premiums, and of alone deciding what communications shall be published, &c.*" Several agricultural papers were received from the societies, which were read, and ordered as heretofore, to be transmitted to the other members of the association.

A communication from John Taylor of Caroline, addressed to the presiding officer of the Delegation, was read; whereupon it was

Resolved unanimously, That the secretary shall cause to be published in the pamphlet form, 500 copies of the letter of John Taylor, "On the Necessity of Defending the Rights and Interests of Agriculture," and distribute the same among the societies composing this Union.

The following resolutions were submitted and read; and after being referred to a committee and reported, were unanimously adopted:—

Resolved, That the only proper end of duties on importation, is the collection of revenue, for the support of government.

Resolved, That whenever the duty on any commodity has been so increased, as to diminish its importation and consumption, the burden of taxation is thereby made more heavy, without a corresponding benefit accruing to the treasury.

Resolved, That duties increased in rate so much as to prohibit importation, are thereby rendered as oppressive as possible to the people, at the same time that the revenue before derived from a lower rate, is totally destroyed.

Resolved, That the high rate of the existing tariff, adopted in 1816, for the encouragement of manufactures, causes it in very many cases to be unproductive of revenue, and yet oppressive to the people.

Resolved, That the agricultural interest, which furnishes the great mass of consumers and tax payers, is subjected to the most considerable evils arising from this policy, and is most interested in their abatement or removal.

Resolved therefore, that a committee be appointed to prepare and lay before the next general meeting of Delegates of the United Agricultural Societies of Virginia, a memorial to the Congress of the United States, praying for such reduction of the tariff of duties, as will remove the restrictions on commerce, add to the revenue of government, and increase the comforts of the people.

JUNE 12th.

Resolved unanimously, That a committee be appointed to enquire what has been, and what is likely to be the effects produced on the agriculture of the United States, by the navigation laws which prohibit the trade between this country and the British West Indies—or any other act or acts of Congress for the encouragement or protection of the navigation or commercial interest; and that the committee report thereon, to the next meeting of the Delegation a memorial to congress on the subject, if in their opinion it be expedient.

Resolved, That a committee be appointed to enquire into, and report to the next general meeting, on the subject of premiums for the improvement of agriculture—the advantages and disadvantages which may have been found to attend them, and the course which may be deemed expedient for the Delegation to pursue for the purpose of fulfilling this part of their duties, as enjoined by the constitution.

Resolved, That the contribution from the societies for the present year, shall be fifty cents for each member, to be paid to the treasurer of the Delegation at the December meeting.

After discussing and deciding on other propositions, and appointing other committees for preparing the regular business of the next meeting, the Delegation adjourned.

RICHARD FIELD,

Vice President of the Delegation.

EDMUND RUFFIN, Sec'y.

For the American Farmer.

DESTRUCTION OR PREVENTION OF THE CUT WORM.

Mr. Skinner,

A letter from Mr. Minor of Orange, detailing the result of a fall-fallow for the corn crop, has particularly attracted my attention. The subject is of great importance to agriculture; and as Mr. Minor appears desirous to ascertain, whether corn, following wheat, will be exempt from the worm, I feel induced to give him the result of five year's experience on that point, and shall be happy if the communication be serviceable to himself or others.

In the spring of 1816, I broke up a fine even sward, principally of blue grass, deep and well. After harrowing and laying off in the usual way, the corn was planted in the month of April. The cut-worm commenced its ravages as soon as the plants appeared above the surface; and scarcely one was left to show what the crop might have been. On the 21st of May, I began to re-plant, but my time would have been more profitably employed in ploughing and harrowing the field, for this labour also was lost. In June, the field was replanted a second time, and this effort was so far successful, that the crop would probably have yielded three or four barrels per acre, but for an untimely frost.

Admonished by this severe, but salutary lesson, I determined to try the effect of fallowing in the fall. Accordingly, about forty, out of forty-five acres, in a field destined for my next year's crop, were broken up in the fall of 1816. This also was grass land, but I do not recollect whether the burthen of grass was considerable.

The residue was not ploughed until the ensuing spring; and the difference in result was alike striking and satisfactory. On the five acre piece the worm abounded, whereas it was rarely to be seen on the other part. In the same spring I listed a small piece of 25 acres, which had been in wheat the preceding year. This likewise escaped the devastations of the worm; but the labour of reducing the banks was excessive. It was my first attempt at listing, and I believe will be the last. This process may answer well upon light or worn lands, but is intolerable upon a strong, well improved soil. From the observations of that year, I concluded that the most effectual mode of counteracting the cut-worm, was to break up a stubble field in the fall of the year preceding its cultivation in corn. Subsequent experience has confirmed that conclusion—for my crops have never since been injured by this cause.

I have been told of several cases in which the worm has committed serious depredations, even after a fall ploughing; and have generally satisfied myself with the supposition that it was owing to imperfect work. In Mr. Minor's case, this does not hold; for there the fall fallow, though well executed, failed of success. To what can this failure be ascribed but to the luxuriant growth of clover, turned under by the plough? A stubble field presents no such attraction for the sagacious parents of these marauders. It strikes me also that this burthen of clover may have acted *mechanically* in the preservation of the insect. Vacancies were left, which furnished habitations, while the undecayed vegetable matter supplied abundant stores of food. Not that I suppose these animals existed, during the winter, in the state which they exhibit, when they give such painful proofs of their activity; but they were sheltered in the *crysalis*, or some other form, from the severity of the winter, and were able to commence their ravages at an early period of the spring.

The rotation of crops, adopted by your correspondent is admirably suited to the improvement of exhausted land—but, I should conceive, not well adapted to lands so much improved as his must unquestionably be; and one, not the least of its disadvantages, is this very evil of the cut-worm.

For several years I have pursued a course of crops, in which corn is always preceded by wheat; and I am now, more than ever, persuaded of its good effects. In a paper presented to the Agricultural Society of Virginia at their session in December, 1818, my humble reflections on a proper rotation of crops, were respectfully submitted; and the advantages of the eight field system, in which this *desideratum* among others is attained, were particularly detailed. Should Mr. Minor think it worthy a perusal, he may find it in the "Enquirer" for January, 1819.

THOMAS MARSHALL.

Oak Hill, Fauquier, June?
29th, 1821. S

FOR THE AMERICAN FARMER.

RURAL ECONOMY—No. IV.—AND LAST.

Manuring—the Cultivation of Wheat.

Baron entering on the subject particularly intended for this day's work, I shall, as usual, take the liberty of indulging myself in a few general observations. It is a very prevalent opinion, that the Farmers in Virginia are generally too extensive for their proprietors to attend to them, even in a tolerable manner—and that this circumstance, added to the existence of negro slavery, is the cause why we are so far behind the Pennsylvanians and New-Englanders in agricultural improvement—and that two or three hundred acres is as much as one man is competent to manage, or should possess. These sentiments I think are entirely erroneous. A Farm, it is true, like every thing else *may* be too large, as well as too small. Ten or twenty thousand acres would be more than enough for the personal inspection of the most industrious and persevering man that ever lived.—Much, in that case, would have to be left to the entire agency of SUBS, too little interested, or too ignorant, either to plan with judgment, or to execute advantageously the directions of the employer. But Farms of this, or any thing like this size, are few in number. The most common extent of the possessions of the first class of land-holders in the state, is from 500 to 1000 acres. Were the area of our whole territory from the Atlantic to the Pacific—from the Mexican Gulph to the Canadian Lakes, subdivided into farms of precisely fifty acres, and each owned and occupied by an industrious family, we might aggregately be richer and stronger—we might maintain large fleets and armies—we might idolize a monarch, and attain an elevated position on the ladder of national glory and renown; but, individually, we should be far less happy than we are at present. If we must be circumscribed in our possessions, to what is barely sufficient to support life, of what use is our almost unlimited extent of country? and what advantage have we over the inhabitants of the old world? Would the republicanism of Americans extend so far as to tolerate an Agrarian Law? Human nature would have to undergo a very thorough and radical change before a general equality could exist in any thing. It is as impossible for a nation to consist altogether of paupers as of grandees. To be all learned would be attended with as much inconvenience, as to be all fools. It is an old and very just saying, that it takes a great variety of characters to constitute a world—rich and poor—wise and ignorant—freemen and slaves. And more than this, it would be very easy to prove that a rogue is as necessary a member of society, as the "noblest work of God"—an honest man. If then it be conceded, that the possession of large estates be not detrimental, either to their occupants or to the community, so far from complaining, or squandering them away as endless sources of trouble and vexation, we should endeavor to improve them for our own use, and carefully entail them on those, in whose welfare we feel the most interest—our immediate descendants. And can it be supposed, that an active, industrious, and intelligent man whose attention is paid exclusively to that profession, from which alone he derives his support, is not capable of managing 500 or 1000 acres of land? With double the force necessary for the cultivation of 50 acres, 100 may be tended equally well, and equally as easy. There cannot be any perceptible difference in the personal attention necessary for either. That large estates are not generally managed as well as small ones, is no argument in favor of its impossibility. If it ever has been done in a single instance, it certainly may be done again. The occurrence, so far from having never taken place, or being very uncommon, is very frequent, when farmers, with some thousands of acres under their care, make as much per acre, by the labor of negroes, as the most economical Pennsylvanian with an estate of only one or two hundred acres, worked by white men. As growers of wheat, I shall only mention Henry Turner and Warner Washington,

esqrs. in the Shenandoah Valley, who, with many others, raise in extensive fields from twenty to thirty bushels to the acre. The latter of those gentlemen I see, by the American Farmer, has obtained, on a select spot, the enormous product of fifty five bushels per acre! As Corn planters, Col. Taylor and Mr. Waring, of the Rappahannock, are probably as successful as any in the world. Ten barrels, with them, is by no means an extraordinary yield from each acre. A very few of the most distinguished farmers in Pennsylvania, ever make, I am told, more than an average of 30 bushels of wheat, and a still smaller number, as much as 50 bushels of corn to the acre. But, suppose they make a great deal more—suppose that on ten acres of land they make 60 bushels of wheat, and on the same quantity of ground 100 bushels of corn to the acre; the whole grain crop would amount to 600 bushels of wheat, and 200 bbls of corn. Such a farmer might be a contented, worthy man, beyond all danger of starving; but could he ever calculate on raising a large family to opulence—to distinction in mental acquirements—to that elevated summit of preferment, which is the aim, the end in view—the most stimulating inducement to all worldly exertion? And yet the ten acre field system has some strenuous advocates! If we make a little less to the acre, we make more in the whole; they likewise cost less in proportion to what is made; at the same time our slaves are generally better fed and clothed, and after all, more contented and happy than any labouring poor in any part of the whole habitable globe—as much so, it is believed, as the feudal vassals of ancient Europe, and incomparably more so, than the present tenants of Great Britain. The lands in Virginia were originally as good, I presume, as they were in Pennsylvania, or any of the Atlantic states. They are now, in improvement, making them aggregately, far in the rear of most of those eastward of us.—This has been brought about, not ably, or indirectly, either from the overgrown inheritances of the land or negroes. It has proceeded from the delusive ideas consequent on placed absolutely beyond want, and that they might spend at least their own lives, in ease, affluence and luxury, without the smallest personal attention whatever. Man, when he can live without labour, is not very apt to resort to it.—The necessity of exertion to health and existence, is a curse entailed on us, which we still as earnestly deprecate, as the head of a snake does a woman's heel. But enough of this.—One thousand acres I shall take as the most desirable size of an estate for one man; on which there is sea room, sufficient to exert himself to the utmost, with the well grounded hope of weathering the storm, and of being safely moored in the harbour of his wishes. To work this properly will require ten men—fifteen horses—and two or three yoke of oxen. The arable land should be layed off into three fields; one half of each may be tended in corn, and the remainder fallowed for wheat, after harvest. By this plan one sixth of the land would be in corn, and one third in wh at every year—it would, consequently, be cultivated once in six years in corn, and once in three in wheat; but, should any particular circumstances make it necessary to tend the same part of each shift in corn at every rotation, one half the land would be in corn in the course of three years, and the balance only fallowed the oftener. If it could be enclosed in six fields, so much the better, as we might pasture the cattle, indispensably necessary to be kept, to more advantage. There should moreover be a timothy meadow, and two or three small lots, near the homestead, which would afford conveniences too apparent to be mentioned. The meadow should be on some wet piece of ground, which is found to be precarious in the growth of grain. It would be so much saved, but hay from high land is generally better. Clover, of late, has become a very uncertain crop; the great difficulty is in getting it to take, or live over the first summer—if the land be poor it is killed by the sun, if rich, it is smothered by the thickness of the wheat. I am decidedly of opinion, that it should be sowed in the Fall, immediately after the wheat; or if this be rolled in plaster, and only barrowed, it may be mixed with it, and sowed

together. Timothy succeeds best, when sowed in the fall, and clover, being equally hardy, would, I should think, do equally well. It should never be touched by the tooth, or hoof, until it blooms, and not then before the blossoms shall have become dead. One half the clover is generally destroyed by turning stock into the stubble field, it being either buried into the ground, or rooted up, and the other half is so trampled, as to be nearly good for nothing. The recommendation that land be tilled only once in six years in corn, may excite surprise after the opinion previously advanced, that this crop might be so managed, as 'not to injure it at all.' But, it must be recollected, I never supposed that tilling land repeatedly, at short intervals, would make it rich; I only imagined, that the ground might remain in *statu quo* as to fertility; but, since our object is to improve—to make it better, we may certainly do it much quicker by covering it with grass, and turning, this under every two or three years, than by sowing it in any grain. Besides, one sixth of an estate is generally as much as the farmer on it can plant in time, and cultivate properly.

Following early in the spring for wheat, with a view to plough again before sowing is, without the ground be immensely poor, a very bad plan; even in that case it had as well, or better, be put in corn. Wheat on fallow, is generally better than on corn ground; but it is only on such tallow as is made in the fall, and which has had the benefit of a summer's covering with clover, or some other grass which may be sown by a single ploughing. Blue grass, though admirable both as an improver of the soil, and a food for cattle, should never be allowed, because, being a hardy induriant, (if I may use such a word) it cannot be exterminated by such slight tillage. Between what is generally termed "Summer fallow," and corn land wheat, there is not often any striking difference: It is frequently in favour of the corn-field, from the superior working which the ground must have, early in the season, for the production of that crop. But the fallow, notwithstanding, sometimes has the ascendancy; this, however, will not be unaccountable when we remember, that although the corn land shall have been better prepared in the spring and summer, it is invariably sowed later than fallow, and sowed in amongst the standing corn, in the most slovenly manner imaginable. No plant is superior, or with the same labour, equal to corn, as a preparator for small grain. If the soil be foul with briars, broom sedge, or blue grass, and I may add *blue thistles*, they never can be extruded, until it shall have passed, what is generally supposed to be, the ordeal of corn cultivation. For this reason, in the commencement of a good system of farming on a rough estate, as much of this grain should be raised as possible.—But, after the whole surface shall have had the advantage of this eradicator of pests, the quantity may be raised to what has been previously recommended. The way of making wheat on corn-land which I would advise, is this: after the corn shall have been taken off, or stacked in the manner designated in my last, let the wheat be sowed at the rate of from five pecks to two bushels to the acre, and covered with a large three horse harrow, the tines of which should be at least nine inches clear of the frame. If, upon examination, it be found not to have been well done, the operation should be repeated. If the field be covered with crop grass or fox-tail, which so much impedes the movement of the shovel plough, all the better. These grasses, by the harrow, will be drawn level with the earth, and the wheat will be found to germinate much quicker amongst it, than where the land is clean.—It also prevents the ground's freezing in a great measure, and is, in fact, equal to a slight top dressing with manure.

The depth of covering wheat should only be such as to insure its coming up. By harrowing fallow much of the grain is left partly exposed on the surface, but even then a very slight rain would be sufficient for its germination; and this way of covering fallow I have always observed to be superior to shovelling. When a field is well clothed with grass, the heavy dews, which fall at that time of the year, are

quite sufficient to produce the desired result. We should commence following as soon after harvest as practicable—the month of August is the proper time. The harrow should follow the ploughs in the same way, and for the same reasons, that were given in the preparatory cultivation of corn. It should then be harrowed in, and all the low places drained with a plough, having two mould-boards made for the purpose. This is also a very necessary business in the corn field, for it is not practicable or possible to ditch every part of a flat field so completely, that all the superabundant water may run off, which would otherwise destroy the wheat, during its almost torpid state in the winter.

Not the least advantage attendant on the proposed plan of cultivating corn, is the decidedly superior manner in which small grain may be both sowed, and managed afterwards. It is a very necessary precaution to observe, occasionally, that no water be dammed, so as to drown the wheat; for though a stiff soil, retentive of moisture, be best adapted to the growth of this plant, it has a dainty stomach, and will not bear cloying.

This seems to be a proper place for saying a little on the subject of ditching. It is generally too much, and in many sections altogether neglected. The strongest land is, of consequence, in many instances altogether profitless. If high land, which has the smallest tendency to retain too much moisture, were ditched, it would be of incalculable advantage. The instant that more water falls on land, than it can easily retain in solution, without there being a near vent, it becomes very pernicious. Deep ditching enables it to absorb much more than it otherwise would do; but, after all, there is frequently more than can be well accommodated. Many soils, where no water ever stands, are so robbed, as to be unfit for cultivation. If all lands of the above description were judiciously ditched, the additional quantity of crops raised, in a few years, would be an ample remuneration for the cost, and it would be a permanent improvement, not only during our own lives, but for our posterity. Cutting, stacking, and threshing or treading of wheat, are operations generally so well understood, as to require but few directions. I would, however, observe, that the plan of sheaving, though handed down from father to son, from the days of the patriarchs, is not the better for its age, and is attended with too much inconvenience to be worthy of being pursued. It is certainly a very neat way of doing the work, but it requires, at the busiest of all seasons, too much labour, and is besides too wasteful. Four cradles would require eight hands to rake and bind—two to carry the wheat together—and one to shock; making in all eleven attendants—and, when the grain becomes very ripe, a great deal is shattered off by tying the bundles. If it be put up loose, four hands will rake after four cradles; and, as they proceed, throw it together in heaps, so as to dispense with the necessity of making it an exclusive work to carry it to the shock. One will do to shock, and another will be sufficient to glean after them as fast as they advance: here we have only six attendants, (a little more than half that are required in the old way,) and the field is gleaned to bunt. The wheat can also be much better secured in the field, than when tied, as it turns the rain as well as a timothy hay stack. The manner of shocking is very simple. You first take up as much as can be grasped in the arms, and tie it about a foot from the heads, then set this bundle firm on the ground, place the wheat around it in the shape of a sugar-loaf, and finish with a cap on the top. Two bushels is enough, and the best quantity to put in one shock. If they are well made, even though they should stand until Christmas, the rain will not penetrate more than half an inch; and if the straw be green or damp, there is not the smallest danger of its moulding, when put up as fast as it is cut. When it is bunched, I have frequently seen it necessary to take down the shock and open the sheaves to prevent its heating. Securing Wheat loose, requires a little additional labour in stacking; but that is done at a time when we generally have force to spare, or at

last, when we are not so busy as at harvest. When wheat is threshed out with a machine, it takes a good hand to untie the bundles: this might be saved.

I now proceed on the subject of manuring. The best way of using all wheat straw which may be more than sufficient for the feeding of cattle, is to haul it out as soon as convenient, and cover the land about four inches thick: It should then remain at least one winter and summer before it be ploughed in, and longer if practicable. I have found by actual experience that this is the easiest way of improving land of any within the compass of a farmer's means. One load will cover more ground, and do more good, than four when decomposed. Vegetable substances improve in two ways; by intermixing with, and becoming a component part of the soil, and by facilitating the action of the inherent principles of amelioration which all land contains, and which, of itself, would soon enrich them, were it not for the countervailing influence of atmospheric attraction. Straw affords protection in a superior degree, to any thing at our disposal, but as an actual manure it is next to nothing. It has also a great capacity for retaining moisture, particularly if it be well saturated, and covered with dirt. I have seen fine potatoes made on very poor land, by planting them in chaff or straw, and covering them afterwards lightly with earth; but if there should succeed a very dry summer, or the potatoes be ridged up, so as to prevent the ingress of a sufficient quantity of water to wet the straw, the expectation of a good crop would be sorely disappointed. This fact goes far to prove the opinion correct, that water is the principle food of plants, for it cannot be supposed, that a small quantity of dry wheat straw would afford nourishment for a plentiful crop of potatoes, in a soil almost totally devoid of fertility, when we well know that the same quantity of straw decomposed, and used in that state, would not give us a crop worth gathering. Corn stalks are the best, and the most abundant of all for manure, which a farm produces. These should be hauled to the stable, around which there should be a well enclosed lot containing about the eighth part of an acre. As horses eat them with as much avidity as they do hay, little manure would be made, were they not fed in great waste. To fifteen horses, a wagon load may be given every day. They should never be carried, or the stable cleaned out, until they are carried on the land in the spring. By throwing in a quantity every day, and spreading them over the whole surface, with the addition of a little straw, and the refuse of hay and cobs, the horses may be kept dry and comfortable, at the same time that decomposition progresses under their feet during the coldest weather. A pen should also be made around the cow shelter, and the stalks used in the same way. Neither horses nor black cattle should ever be permitted to go out of their respective enclosures during the winter, and the early part of spring, except to water; and if it be convenient to have this within the enclosures, they may not go out at all. They would do themselves no good, when nothing is to be got to eat, while the land would sustain much injury by being trampled when wet; and some manure would be lost, which might as well be saved. Early in the spring, all the manure which may have been accumulated, during the preceding winter, should be hauled out, and immediately covered with the plough, when in a half rotted state. If it be intended for clover or other grass, it should not be hauled out till vegetation shall have considerably advanced, as it would then be sooner protected from the influence of the atmosphere. Fine or well rotted manure should be permitted to remain on the surface because it acts quickest in that situation, and decomposition having in a great measure ceased, there is less danger of loss by exhalation; but long litter or manure, only half rotted as being more subject to evaporation, should be ploughed in directly. It is also believed that the heat evolved by the process of fermentation, is of great service to many soils, particularly to one in which clay predominates: the great difficulty attending the application of a large quantity

of manure, is the labour necessary to haul it out, so much so, that had we to carry it a mile, the expense of enriching an acre of poor land would amount to nearly as much as it would be worth after the operation. To obviate this inconvenience, Colonel Taylor recommends "ambulatory cow stables," which, like most of the suggestions of that scientific agriculturist, is very commendable; but I think we might go still further and have ambulatory stables—temporary houses may be erected with logs or on forks, and with little trouble or cost, made very secure and comfortable.

By being located in the poorest part of the field designated the ensuing year for corn, they would afford advantages which require no comment. When there are large barns and stables under one roof, which are so much approved of in Pennsylvania, and admired everywhere, we generally see fine rich land adjacent, but the extreme edges of the farm in every direction, stand as sad witnesses of the fallacy of such an injudicious monopoly. All composts made in a mere artificial way, are believed to cost more than they are worth. On the subject of plaster of Paris, I feel much interested—I have used for the last four years about ten tons, annually. I have made various experiments, some of which have been very satisfactory as to its ameliorating tendency, and others as much the reverse. On the method of its action, there are almost as many opinions as there are persons that use it. It is certainly a very whimsical substance, about which we as yet know very little. I have frequently seen a considerable effect on the growth of clover and corn, but seldom, and less apparent in the latter than the former. I am much inclined, however, to think that it is of trivial importance. If it act by becoming a constituent part of the soil in which there may be a deficiency of that ingredient, there surely must be a "quantum sufficit," beyond which, its application would be prejudicial. If it be only a stimulant, it would require more discrimination in its use, than I fear is generally possessed by common farmers. All stimulants exhaust after their operation, and require larger doses after every application. If it possess a septic quality, it would only do that more rapidly, which would be effected as certainly though a little slower by unaided nature. If it act by attracting moisture, it can only be of service on very dry soils, which is generally, but not always the case. On a clover field we may calculate with considerable certainty, on at least a visible effect, but who can say that even then it pays for its cost? It appears to me, as regards the utility of this substance, if I may use an old adage, that it has been "all talk and no cider." It is certainly going fast out of repute, for whatever may be its virtues when repeatedly used, one fact seems to be accredited by every body, that it is "no longer pipe, no longer dance." In the golden age which existed a few years since, we might afford to use it for fashion's sake, though never adequately paid for its cost, but now "*Tempus mutantur et nobis cum illis mutandum est*!" We must retrench our expenditures, and "cut our garments according to the cloth," or in a few years, wear none at all. Vegetable manure is the most ready, cheap and convenient auxiliary which we can prudently employ for the reanimation of exhausted earth, and although it be probably impossible to apply it in such quantities as to enrich at once the whole surface of farms when poverty predominates, we may at least spread it out partially so as to enliven the soils and give a start to the ample agents of nature which would then proceed in geometrical progression to the most desirable results. Manure, like the stiletto of an Irishman, never misses fire. It is a panacea to all soils, no matter what may be their constituent parts. The most barren sand bank or stubborn clay under heaven, would surrender at discretion, if placed within pistol shot of a dung battery. Whether the management of the writer of these papers would be found, on examination, to coincide exactly with his directions to others, is a matter of but little importance; it is enough in this place to say, it is his wish that it should: But if the reverse were true, it would be only the addition of another proof to the many which already stand on record, that

"it is much easier to give instruction, than to set example."

R. B. BUCKNER.

VINT-HILL, VIRGINIA, May 1st, 1821.

BRITISH PEERAGE.

The number of Peers of Great Britain, independent of the Bishops, is exactly 500; of these 56 have been ennobled as courtiers, 19 as younger branches of nobility, 39 as statesmen, 16 by diplomatic, 17 by naval, 57 by military, 39 by legal services, 59 by marriage, and 227 by the influence of wealth, &c. There are 93 bachelors, 64 widowers, and 344 who are married. Of the 408 and widowers, 99 are without children; and the remaining 309 have now living, 755 sons, and 703 daughters. The paternal descent of 156 peers can be traced to the conquest, or 11th century; that of 51 to the 12th century; 52 to the 13th; 35 to the 15th; 60 to the 16th; 59 to the 17th and 3 to the 18th century; the genealogies of the remaining 49, cannot be traced with sufficient accuracy to warrant insertion. The ancestors of 78 of the Peers, whose descent can be traced to the conquest, were settled in England previous to that event; the other 79 came over with the conqueror. Of the ancestors of the remainder, 31 have emigrated to this country since that period—1821.

TO COOK RICE MILK.*

To three quarts of boiling milk, put a tea cup full of rice which has been carefully picked and washed—cook it slowly, but constantly, for four hours before the fire, in an uncovered vessel—season it with butter, sugar, and cinnamon or nutmeg. The milk must be new, otherwise it will curdle before the rice is cooked.

* The Editor can safely recommend this to Housewives.

Cure for the Tooth-ache.

Take a nutgall, break it, put a small piece of the inside into the hole of the tooth, and after being there for half an hour, or an hour, it must be removed, when it will be found to be covered with a white matter—and a fresh piece of nutgall is to be put into the tooth so long as any matter shall be found to come away—and when that ceases to be the case, the cure will be found to be effected.

The Elder Tree.

This tree possesses the following properties: 1st, saving turnips from the fly—2d, preserving wheat from the yellows—3d, preserving fruit from the blight—4th, preserving cabbage plants from caterpillars—5th, preserving peach trees, &c. from worms. The dwarf elder has the most potent effluvia, and it requires no other trouble than to strew the leaves over the ground, or to strike fruit trees with a twig.

Remedy in case of swallowing Pins, Fish, or other sharp Bones.

Administer four grains of tartar emetic, in warm water, and let the patient drink the white from six eggs, which coagulating upon the stomach before the tartar operates, envelopes the

pin, or bone, and it is brought up. A person who swallowed several pins was made to throw up the whole by the above method.

Saving of Fuel.

The Franklin Store has been objected to by many, as they consume too much wood. This is easily remedied, by laying a false back with brick, within eleven inches of the front at bottom, and five at top, which any mason's boy can do in half an hour, this will save ONE HALF the wood, and afford double the heat.

Disease among Horses and Cattle.

A dreadful disease has lately made its appearance among horses and cattle. It affects the tongue in a most singular manner, causing it to become almost entirely raw. The method of cure is to make a strong decoction of briar root, parsnium bark, white oak bark and sassafras bark—add to which, after being well boiled, copperas, salt-petre, alum, and assafoetida—make it pretty strong; then with a swab, wash the tongue and rub it pretty hard four or six times a day. Bleeding is also good, and drenching with a tea made of spice wood, poplar bark, and sassafras, adding a little salt-petre. This is a pretty certain cure.

It is said that other species of animals are subject to take it.

Sore tongue in Horses—a pretty certain cure.

Dissolve 2 ounces copperas, and 2 ounces of alum in a pint of strong vinegar; swab the mouth and tongue with the solution, until the disease is removed; then dissolve honey and alum in vinegar, and use it in the same way to heal the tongue.

THE FARMER.

BALTIMORE, FRIDAY, JULY 13, 1821.

PRICES CURRENT.

Flour from the wagons, \$4 50—Whiskey from do, 26 cts. exclusive of barrel—Hay, per ton, \$17—Straw, do. 7 a \$8—Wheat, White, 87 a 90 cents—Red, do. 85 a 87 cents—Corn, 40—Oats, 27 a 30—Rye, 40 a 41—Cod fish, per quintal, wholesale, \$3, retail do. \$4—New-England Beans per bushel, \$1 12½—ditto Peas, 75 cents—Plaster in stone \$6 per ton, ground, \$1 35 per barrel, 33 cts. per bushel, \$8 per ton—New-Orleans sugar, \$9 to 12 50—Muscovado, do. \$9 a 12—American White Lead, \$12 50—Ground do. 13 a 14—Lined Oil, 75 cents—Feathers, 40 a 45 cents—Potatoes, per bushel, 6½ a 75 cents—Shad, new, \$6—Herrings, \$2 a \$2 25, declining—Fine Salt, 55 cents per bushel—Ground Alum do. 55 a 60—St Ubes, 60—Cadiz, 50 a 55—Turks Island, 75—Live Cattle, \$5 a 5 50—Beef, 8 to 10 cents—Hams, 10 a 12 cents—Middlings, 12 cents—Butter, 25 cents—Peas 30 cents per bushel—Eggs, 12½ cents—Cheese 8 a 10 cents per pound—Tar \$1 30—Turpentine, 1 87½ a 2—Pitch 2½—Rosin, common, \$1½, bright do. \$3 per barrel—Varnish, 25 cents—Spirits Turpentine, 33 cents per gallon—Cotton, (good Upland) 14 a 15 cents; very dull—Rice 3 a 3½ cents—Ship and Flooring Plank, \$25 a 27—shingles, b. t 6½ a \$7, common, \$3 to 4½ per M.
Maryland Tobacco.—Fine tobacco, no sales—Common do. \$4 50, sales.

We have heard of no sales of Virginia Tobacco.

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AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL. III.

BALTIMORE, FRIDAY, JULY 20, 1824.

NUM. 17.

AGRICULTURE.

Remarks on Soiling,

[From the Massachusetts Agricultural Repository.]

Continued from page 185, volume 2, of the American Farmer.

CONFORMABLY to my promise, I proceed to state the manner in which the soiling process ought to be conducted, by any one, who may originally attempt it; how far it is applicable to the farming condition of New-England; and what species of farmers will find their account in attempting it.

As to the manner in which the soiling process ought to be conducted, besides that general care and personal superintendence, (at least occasionally and by way of oversight) which is essential to success in this, as in every other business in life, three general objects ought to claim the attention of every farmer, or other person, who undertakes this process.

1. Provision against seasons of extraordinary drowth, or deficiency of general crop, from any other natural accident.

2. Succession of succulent food, during the whole soiling season; and facility of its attainment.

3. Preparation relative to care of the stock, and increase of manure; the particular objects of the soiling process.

As to provision against seasons of extraordinary drowth, or deficiency of general crop from any other natural accident, I make this suggestion from respect to an obvious dictate of prudence, rather than because such has been my own practice. In fact, I have never made any such provision. Years of uncommon drowth, or sterility from other causes, are so uncommon in our country, that I have, hitherto, neglected, and without injury, this plain suggestion of prudence. As a general rule, however, a farmer, commencing and adopting this plan, would act wisely, to keep on hand, a month, or six weeks stock of hay or other food; so as to have assurance that his cattle should not suffer from any untoward accident of season. A mixture of dry food, with the succulent, is often very conducive to the health of the animals soiled, and enables the feeder to check the too great looseness of the bowels; often the effect of high feeding upon succulent vegetables.

Some provision of dry food, against such exigency, and for such purposes, is wise, as a dictate of foresight. It is also as a dictate of economy, as some mixture of dry food with succulent, makes the latter go much farther; and, on very stormy days, enables the feeder to preserve the general and desired state of the cattle, soiled, with less personal exposure.

As to the second general object of attention, succession of succulent food, during the whole of the soiling season; and facility of its attainment. This includes

1. Nature of the crop used for soiling.

2. Time and mode of sowing and cultivation.

3. Mode of taking and applying the crop, and the relative location of the ground, used for soiling, to the place where the cattle is soiled.

1. As to the nature of the crop used for soiling This must, of course, be different, in different climates. The English speak of lucerne, clover, peas, cabbages, as used for this purpose. Of all these, clover is that which is the most capable, in this country, of being made useful in this system. Unquestionably, however, any succulent vegetable, which cattle consume, may be used, according to the discretion, which acquaintance with its nature dictates. Without dilating generally on the applicability of all of these vegetables, and leaving every farmer to take

advantage of these and every other, he may deem useful, and find convenient, I shall state my own practice and experience.

These have led me to simplify and reduce the number of vegetables used, for the purpose of making the cultivation and effect of each species selected, a distinct subject of consideration; and for the enabling me to have the great supports of the system well established. This effected, it is easy to change, and to deviate, into other vegetables, or to introduce them in aid of those, on which any one chooses, principally, to rely. In making my selection, I was guided by the nature of the climate, and by the consideration of the vegetables selected being the best known, and most successfully cultivated in the neighbourhood. I use but four,—1st, grass; 2d, oats; 3d, Indian corn; 4th, cabbages.

1. Grass. I depend upon this for the first month, of the soiling season; beginning, in our climate, about the 20th of May, or 1st of June, and terminating about the 1st of July.

In my own practice, I have contented myself with commencing soiling at the time, at which cattle are in this climate usually turned out to grass. It would be wise, and I apprehend, easily practicable, to introduce some vegetable, which, sown the preceding year, would enable the farmer to commence cutting earlier, and so carry back the commencement of the soiling season to the first of May, possibly earlier. This, however, I have never attempted, partly because it requires personal attentions, which, I could not give, consistent with my other avocations; and partly because, in the commencement of the system, I thought it wise to limit my experiments to the period, in which cattle are usually kept upon pasture; leaving it to future experience to enlarge the benefits and length of the soiling season. Fearing lest by attempting too much, I might be discouraged, and by failure, in part, might put to hazard the great object of the system, which are attained, when vegetables taken for soiling are made a complete substitute for vegetables fed by the cattle themselves from the pasture. For the first month, therefore, of the soiling season, I depend upon grass.

Concerning the quantity of land, in grass, necessary to be applied to the support of any specific number of cattle, I have no experience sufficient to state it with accuracy. My own practice has been to cut from the earliest grass I could find, in small pieces and patches about my house, and by sides of an inclosed road, of which I could not easily take an exact measurement. Minute calculations on this point must obviously be very uncertain and unsatisfactory, as the capacity of every given piece of land, to support any specified number of cattle must depend upon its heart and state of cultivation. It will be sufficient to say that my own experience authorizes me to state, that one acre of good clover, or any early grass, cut for soiling, is ample for the support of six head of full grown cattle, from the 20th of May to the 20th June. As it is test, however, in all calculations of this kind to provide against all contingencies, my rule is to consider one quarter of an acre of my best grass producing land as appropriated to each head of soiling cattle, for its support between the 20th of May and 1st of July. Less than that quantity has always been sufficient on my farm. If it be not used for soiling, the produce is housed as hay, for the winter.

Small farmers, who should top dress the land every day cut over, with the water leached from the manure heap, would reduce the extent of land required for the process of soiling very considerably.

It is needless to give any directions relating to any particular preparation for the soiling process, for this first period. What is required is only land in its best grass state,—good mowing land,—to be reserved at the rate of a quarter of an acre, for each head of cattle soiled, and for the facility of feeding an lot of manuring for after feed as near the barn, where the cattle are kept, as possible.

The preparation of oats, Indian corn, and cabbages, require somewhat more particular attention.

Preparation of soiling food in April, for July. 1st. Of Oats. These are, on my farm, made to succeed grass, and usually afford a good cut about the first of July. As it is important in every plan of husbandry, to simplify as much as possible, I shall consider oats, as the food exclusively destined for the month of July, although, in fact, at the latter part of the month, Indian corn stalks may begin to be cut; and had often better be commenced, not only for the sake of diversifying the feed of the stock, but, because, the corn stalks cut in the latter part of this month will be more likely to vegetate anew with luxuriance, than if cut later.

With this explanation, I state oats, cut in the milk, to be the food, in this climate, for the support of the soiling process, in July. As it is important to get the cattle off of the grass land as soon as possible, to the end that the winter crop of hay may be the more abundant, so the preparation for oats ought to be as early as possible. It will be best, if the land have been thoroughly ploughed the autumn preceding. It ought to be land in excellent heart, all my calculations being made on land in such a state. It being obvious that calculations on any other must be altogether uncertain and various in result. It ought also to be land, which had been cultivated and well manured the year preceding. As soon as the frost is out of the ground it should be ploughed at least once, and the oats sowed broad cast, at the rate of four bushels to the acre, at least. The land should then be harrowed and rolled. Oats thus sowed, at the earliest moment possible, will generally be ready for the scythe by the first of July.

As to the quantity of land thus to be prepared, one acre, for every four head of cattle soiled; that is, one quarter of an acre for each head, will be sufficient. At least such has been invariably my experience, where the land is in proper heart and tilth. In order to test this point, I have not only observed and compared the general extent of land cut over, with the whole number of cattle soiled, but also have more than once had the quantity eaten by a certain number of head, in a certain number of days, on a measured extent, compared. The result of my experiment is, that one square rod of oats, in full milk, growing on land, in proper (that is, high) tilth will support one head of cattle a day. One quarter of an acre, or forty square rods, for thirty days, is a fair basis of calculation, and making a sufficiently liberal allowance for accident.

In the outset of attempting this system, I should recommend somewhat enlarging this quantity, that is, sowing somewhat more than a quarter of an acre, for every head of cattle soiled.

1st. Because in farming as little should be left to chance as possible.

2d. Because nothing is lost; if there be an excess, it may be cut and dried for winter food.

3d. Because the necessity for beginning to cut a little before the oats are in full milk, and sometimes of extending the cut a little after that period, will offset the general result of all calculations relative to the productive power of the land.

In reference to the fact, and upon the supposition on which we are now proceeding, that oats alone,

without aid from any other product, are relied upon for the whole month of July, the sowing ought to be successive, viz. one half the destined quantity of land, as early as the seed can be got into the land; the other half, a fortnight later, so that the crop may have some succession. It would be probably better if the whole extent destined were divided into fourths, and sowed each fourth with a week or ten days intervening. Thus supposing the number of cattle soiled to be four; requiring one acre, according to my practice; and one quarter should be sowed on the 1st of April, one quarter on the 8th, one on the 15th and 22d. My own practice has not been thus subdivided. I have found one sowing about the 10th, and one about the 15th to answer.

2d. Indian Corn. This, according to that simple plan, of conducting the soiling process, I am describing, is to be relied upon for food during the month of August.

The estimate made concerning the capacity of land in oats, to support stock, may for all practical purposes be assumed to be the same, when in Indian corn; that is, a quarter of an acre to support one head for the month. Somewhat more than that quantity to be sown per head, for the same reasons as those stated in relation to oats; the land to be in the same heart and tith; to receive, at least, one ploughing, and harrowing, about the latter end of April, and in the beginning of May; after which light furrows should be run three feet asunder, at the depth of three or four inches. In these furrows corn should be sown broad cast, about the thickness, and in the same manner, as peas are sown, in field culture of them. The corn may then be covered by the plough. Although, in my experience, a harrow drawn lengthways, and then crossways, followed by a roller, is sufficient, and to be preferred for this operation.

If the farmer choose, and his fund of manure permit, the furrows, previous to planting, may be lightly strewn with manure, to obvious advantage. This, however, has not been my practice. Grain of any kind, not permitted to seed but little, exhausts the land; but if it be repeated it will require, of course, some provision of manure to prevent its deterioration. He, however, who carries on a soiling system, upon any important scale, will never want for manure.

Corn thus sown will be ready to cut the latter end of July and the beginning of August. The whole month of August, I have found Indian corn, cut in the stalk, the best soiling food. If, however, the farmer prefer to give a variety he may sow a part of the land in oats, instead of corn, and alternate through the month of August on oats and Indian corn.

In the middle of May, in the beginning and middle of June, and even as late as the 1st of August, in our climate, a portion of land proportionate to the number of cattle, should be sowed in like manner; on which soiling may be continued during the whole month of September. In this month, however, reliance may be placed upon the grass of the second crop, from those acres from which soiling was effected in the month of June. The grass of the second crop will generally enable the farmer to soil to the 15th of October, if his grass land be in proper tith and heart.

After the 15th of October to the beginning, or the middle of November, the tops of his winter vegetables, such as carrots, or turnips, and which, in every good system of farming, should be raised in proportion to the stock kept, should be relied upon.

After which cabbages should succeed until the time when all cattle are housed in this climate.

Reduced to a single statement, my experience and system, is, for the support of my soiled stock during the months of July, August and September, to sow, in the months of April, May, June and July, equal to three quarters of an acre of land for each head of cattle soiled, in such succession as will give also a regular succession of succulent food, in the three first mentioned months.

For their support from the 20th May, and during the month of June, I reserve early clover or other grass, at the rate of one quarter of an acre for each head of cattle soiled.

For their support during the first half of October I depend upon the second growth of the half acre, cut over in May and June, and the second growth of the oats and corn cut over in July.

This period, between the 20th May and the 15th October, is the only one on which I rely on grass, oats, and Indian corn; and includes a reservation and employment of land, equal to one acre per head of cattle soiled.

My own experience has been always less than this. Never having exceeded, as I believe, seventeen acres for twenty head; and those, never in that state of high tith, which in this systematic statement I recommend.

In truth, the capacity of an acre to maintain cattle, in a soiling process, if conducted with due attention to developing its full powers, is probably four, or five times greater than this, but I choose to raise no extravagant expectations. In the commencement of every new system, mistakes will be made. Great diversities in quality or state of land must exist, and will, of course, occasion a diversity in result. Besides, the soiling process, beyond all others, requires vigilance, and foresight. Cattle, in this process, are not left to range over an immeasurable extent of pasture, composed of grass, heath rock, marsh, brush and briar, about which the owner makes no calculation; sometimes stocking it beyond, and sometimes beneath its power; in good seasons keeping them well, in bad affording lean and scanty fare, scarcely sufficient to support life, and wholly inadequate to a profitable return. In the soiling process they are put under the care of intelligence. It must exist and must be exercised. If this be the case, the reward from the system, on farms suited for it, is ample.—For myself, after a trial of six years, no consideration would induce me to change it for the old method of pasturing.

It remains to explain the soiling system during the residue of the season, viz. from the 15th of October to the middle or the latter end of November; at which time stock, in this climate, usually begin upon their winter food. In my system, I have depended upon the tops of carrots and turnips, destined either for the market, or for the winter food of stock. My practice has been to raise from eight to twelve acres of vegetables. The tops of which, with a single foddering of salt hay, per day, have been, according to my experience, sufficient to support, equal to twenty head of cattle from the 15th of October to the middle or latter end of November.

If, however, the farmer is not in the practice of raising a sufficient quantity of roots, to yield a support for his stock, for six weeks, cabbages are, in this climate, the farmer's best dependence; after the second cutting of the grass, and corn, and oat fodder, fail.

The preparation for cabbages, in field culture, is so well and universally known it needs no explanation. It is sufficient to say that, in suitable soil, well manured, a thousand plants, weighing, upon an average, fifteen pounds, may easily be raised on the eighth of an acre. These, at 200 lb. per day, per head, or 134 cabbages, will be sufficient for each head of cattle seventy days, which is ample for the support of each head, to the first of December.

With respect to care of the stock, and increase of manure; the particular objects of the soiling process. All the care of the stock, requisite, is keeping them clean, and carrying them, every day; throwing the manure into the proper receptacle; seeing that the cattle are regularly and sufficiently watered; and that they be permitted to be at large in a yard, of a common barn yard size, at least two hours, in the morning, and two in the afternoon. The yard will be best if a part of it be shaded, or sheltered from the direct rays of the sun.

The food is distributed in racks, under cover, or in the barn, about six times a day, in due proportions, which the usual practical knowledge of a farmer will easily regulate.

A cellar under the barn, or at least a covered receptacle for the manure, clayed at the bottom, or stoned, so as to be water-tight, to the end that the drainings of the manure should not escape in the

subsoil. The yard and floor of the barn should, also, be so constructed, as to direct the urine into such a covered, water-tight receptacle.

This is particularly necessary in the soiling process, inasmuch as the manure made by succulent food is rich, and watery, and liable to be in a degree wasted by the action of the sun's rays, in an open yard. But when under cover, it is the richest of all manures of like species, and is qualified beyond all others, to impart its riches to soil, and earth thrown into the receptacle, and mixed with this summer's manure.

Hogs, also, should be permitted to range into it from the hopen, not only for the purpose of mixing the deposit together, but also on account of economy; in all soiling, some waste of green food is unavoidable, either from sometimes cutting more than can be consumed in the day, or from its being blown upon by the cattle. This hogs consume and prevent loss of it.

The increase of manure in this mode exceeds all anticipation. It is on this account that the soiling process claims the attention of farmers, who are always ready to say, "We can do well enough, only give us manure." The want of manure is our great want." This is supplied by the soiling process, in a mode cheap, easy, within the resources of every farmer, and leading, in its event, to the highest and most satisfactory of all methods of conducting a farm.

I have been the more minute, in this statement, and shall not fail, hereafter, to communicate my experience, in this system, because I apprehend it is peculiarly suited to the farming condition of Massachusetts; and although it is, at present, almost unknown, and wholly unpractised—at least, I have never heard that it is as yet practised, upon any considerable scale, on any farm (except my own) yet I am satisfied that it will gradually grow into use; and the sooner it can be made to be understood, and the way shown, the better for our commonwealth. A farmer, now-a-days, who has but thirty or forty acres of land, feels himself, in some measure, straitened for want of room. He is tempted to buy pasture ground; to widen his surface; perhaps to run in debt; and embarrass himself for life, for the sake, of what he thinks, the "one thing needful" for a farmer—much land. When his sons come of age, if he cannot give them more than thirty or forty acres, they must abandon their homes, the land of their fathers, and all the privileges of a cultivated and improved society, to seek a great farm in western wildernesses.

Now all this is mistake and want of knowledge of the productive power of the soil, when highly cultivated. The first step for farmers to take is to reverse their old prejudices in this respect, and instead of calculating how much more land they want, let them try with how little they can do; and do well.

There is no proposition in nature more true, than that any farmer may maintain upon *thirty acres of good arable land, twenty head of cattle*, in better condition, with more profit, with more comfort to the animals, with less labour, less trouble, and less cash advance, to himself, than he at present usually expends upon an hundred acres. In addition to which he will have the great satisfaction of seeing, in time, every square inch of his land productive, instead of seeing, as he does now, not more than one part in four of his farm producing any thing; or at least any thing that will pay the expense of harvesting.

But how is this practice to be introduced? I answer—Gradually. Let farmers "feel their way" into it. If any farmer thinks that he wants more pasture land, in order to keep more cattle in the summer, in order to consume his hay, or to make manure, in winter, instead of running in debt, or laying out his money in more land, let him keep himself free of debt, or out his money out at interest, and let him soiling. Let him be assured he will find his account in it. But how shall he try? Shall he shut up all his cattle at once; enter upon a scheme recommended by book writers; and perhaps fail, either from accident, or misapprehension, the first year. By no means. Every practical farmer, if he be wise, will, on the one hand, never utterly slight the suggestions

of books, and writers on the subject of his art; and, on the other, will never enter upon them, at once, in any great and decisive scale. As the saying is, "he will always feel his way." Thus, for instance, in this case of soiling. A farmer, ignorant of the subject, yet willing to try the experiment, should commence with one or two head of cattle. Let him set aside, at first, two acres of land for each head. Nothing will be lost if there be an access of the oats, or corn, sown for soiling, beyond the consumption, the surplus cut in season, will remain for winter's food. Let him go through, for one year, a course of soiling, such as is suggested, for one or two head of cattle. Let him oversee the feeding himself; or, by a confidential hand. A boy, if trust-worthy, is sufficient for such an experiment, acting under the daily directions of his father, or master. Let him provide a pit, or cellar, covered, or under the barn, or so placed in relation to the cattle soiled, as that the manure and urine can be easily preserved; the cellar, or receptacle, being water tight; if this be so situated as that his hogs can have fair play among the deposits, it is impossible but that he will find his account in it.

One year's success will enable him, and I cannot question, will induce him, to double, if not treble, his next year's experiment. Soon he will, if the nature of his farm permit, shut up his whole stock; and ultimately will arrive at a state of conviction and feeling, such, as will never permit him again, on any consideration, to allow cattle to run at large, on any of his land, which is capable of being ploughed and mown.

I know it will be asked what shall be done with rocky land, and land suitable only for pastures? My answer is, that where a man has *nothing else*, but rock or pasture land, or sand, which cannot be made subject to cultivation, a man must manage according to his condition. Good farming is making the most of land, according to its species. If a man has a sand bank, on the margin of the ocean, he will best make salt. If he have nothing but some perpendicular mountain rocks, he will best, probably, keep goats. So of the rest. Farming, to be good, must always have reference to the species and capacity of the soil.

The system I advocate has reference to *arable land*; to that portion of it on every man's farm, which is capable of being ploughed, and mowed over. Every man who wishes to make the most of this part of his farm, will effect this the most certainly, the most economically, and the most satisfactorily, by the mode I recommend. If a man have part pasture and part arable, he may soil for part, and pasture for part. There is nothing inconsistent in this; on the contrary, the soiling is a great support to the pasture; because when the pasture fails, as in dry seasons it often will, a man, who soils part, will always provide a surplus of his soiling food, to meet such a contingency.

In answer to the question, what species of farmers will find their account in attempting to soil? I answer. EVERY FARMER, who WANTS MANURE; at a CHEAP and EASY RATE. The greatest profit of soiling arises from the quantity of manure it enables the farmer to make; more than doubling it upon the same stock. It may be adopted, I apprehend, as an axiom, almost universally; certainly, except in cases of very great proximity to a town or village, that soiling is the cheapest of all modes of obtaining manures. In this point of view, the saving of fence, the economy of land, of food; the increase of milk, and the better condition of the cattle; all of which have been shown to be the consequence of this method, may be considered as incidental to the system; as an offset for the labour requisite; giving the manure made as a clear gain; and what is more, without the loss and trouble, and expense, of carting from a distance. It is not only made, but it is placed, just where it should be, in the farmer's own stercory—*or*, covered manure heap.

The rich farmer, and the extensive land holder, ought to avail himself of it; if he wants manure. Such farmer, if he have capital, may stock his pasture land up to its full pasture power, and keep a number of head additional on the soiling system, according to the quantity of manure, of which he stands in need. But the conduct of a farm, upon a great

scale of this nature, depends upon so many circumstances, that the particular mode or extent of applying this system, as subsidiary to pasturing, cannot be prescribed by any general rule. Calculations must have reference to a knowledge of all the particular circumstances and relations of such a farm, and such a capitalist farmer.

It is to small farmers, those who possess twenty, thirty, or forty acres of land, to whom this system is peculiarly applicable. Upon this they may build up a most prosperous agriculture, with little capital, little more than ordinary trouble, and little or no risk; relieved from debt, which is so frequently the farmer's ruin, under the idea of the necessity of purchasing more land, and relieved, also, from the pain and vexation of owning and superintending a vast surface; every where less productive than it ought to be, and in a very great proportion, often not productive at all.

I have, thus, endeavoured to give, according to the request of the Trustees, an account of the mode of my conducting the soiling process, and the result of my own experience. It is now six years since I commenced it, and no consideration would induce me to abandon it. Every year brings new conviction of its facility and its productiveness.

If small farmers, would be persuaded to commence the system upon a small scale, with one or two head of cattle, they would gradually become acquainted with it. Success would inspire confidence. Until enlarging the number of cattle soiled, they might, in time, easily keep one head per year for every acre of land they possess. Far greater than this, would be the fair, ultimate, result of the system, if wisely conducted. Besides which, they would find other economies and advantages resulting from it, amply compensating for all the increased labour consequent upon the process.



COMMUNICATED FOR REPUBLICATION IN THE AMERICAN FARMER.

A Letter on the Necessity of Defending the Rights and Interests of Agriculture, addressed to the Delegation of the United Agricultural Societies of Virginia.—By JOHN TAYLOR OF CAROLINE.

Caroline, (Port Royal) January 22, 1821.

SIR,—By the last post I received the printed proceedings of the United Agricultural Societies of Virginia, of the 6th and 7th December,* and not knowing to whom I am indebted for the civility, my acknowledgement is transmitted to you as the president of the meeting, although I have not the pleasure of your acquaintance.

An opinion, that nothing has been suggested, so likely to advance the prosperity of the United States, as a union and concert of Agricultural Societies, proposed by the constitution of that in which you preside, induces me to subjoin some reasons suggested by those urged in your proceedings, which have contributed towards its adoption.

Such a union and concert seem to me to bear no analogy to leagues or combinations suggested by fraud. On the contrary, it is conformable to the principle which caused men to unite in civil societies for the defence of life, liberty and property, against violence and imposition—and strictly analogous to the confederation of the United States. This was not entered into for the purpose of invading the rights of other nations—but, to prevent other nations

* The papers referred to, are the last address and petition from the Delegation, and the constitution of the United Agricultural Societies of Virginia, for which, see No. 42, vol. 2, of the American Farmer.

from invading our own. The several internal combinations, suggested and directed by exclusive interests, which have appeared in the United States, are, on the other hand, analogous to the strong or cunning man in a state of nature, exercising fraud or force over the weak and ignorant; and they have placed the agricultural interest in the same relation to themselves, as this country, without union, would have occupied with respect to countries organized to act with effect. The agricultural interest cannot therefore be more safe against the aggressions of inimical fraternities, unless its members shall act in concert, than the U. States would have been against the aggressions of inimical nations, without a union.

There is even a distinction between the union of the states and a union of agriculturists, in favour of the latter. The union of the states is able to invade the rights of other nations; but the union of agriculturists cannot permanently invade the just rights of other interests. It cannot fleece them; because as the agricultural interest embraces, and must forever embrace a vast majority of the people, the spoil to be acquired from a very inferior minority would be inconsiderable, and its division impracticable. As the chief consumer of imported articles, and the ultimate employer of merchants, manufacturers, and sailors, it cannot injure either of these classes without inflicting a wound upon itself, which could only be healed by removing the injury.

The agricultural interest is, therefore, in this country, a patriot from necessity, and an umpire of the public good of superior integrity to any other interest. If we compare it with the banking, the capitalist, or the patronage interest, we shall pronounce that its integrity in deciding questions of national concern, was exclusive. But when compared with the mercantile interest, though a superiority will still appear, yet we shall discern in the latter a degree of integrity approaching near to that from which it is reflected. The alliance between the two is so indissoluble that their differences, were they the only negotiators, would always end in equitable compromises.

I think that the time has arrived for resorting to this uncorrupted umpire, not merely for the sake of the agricultural interest, but of justice to labour, industry, and talents exerted in all employments; and particularly to manufacturers themselves, who will suffer more than any other class of society, by raising up a class of capitalists or masters over them, at the national expense.

One crisis is a bad thing. It is that nice point of time at which a single prescription may kill or cure. If a single crisis is a cross or pile chance, for life or death how tremendous must a case be, by which liberty is exposed to three! Such, in my view, is the situation of the United States, at this period—the three perils by which we are beset, may be called the fanatical crisis, the avaricious crisis, and the geographical crisis.

The fanatical crisis exhibits the curious phenomenon of an enthusiasm against negro slavery, and in favour of the slavery inflicted by monopoly. This inconsistency arises from neglecting to compare the evils of each. From the mass of facts for this comparison, a selec-

tion of a few will suffice to show which inflicts the most misery. Negro slavery in the United States, instead of killing, multiplies people.—The slaves increase like the free. Their condition is softened by the sympathies and interest of the owners, by supplies of food and raiment without care, by connubial freedom, and by a multitude of indulgences sufficient to produce a stream of cheerfulness and mirth, indicating no small share of personal happiness.—The tyranny of monopolies possess no sympathy; it supplies no food and raiment; it creates a constant famine as to both, by its constant thefts from industry; it produces little cheerfulness or mirth; it diffuses poverty over a vast number of people; it peoples poorhouses and standing armies; and as its mischiefs for ever outrun its remedies, it annually consigns multitudes to the grave, before these remedies can arrive; for they come behind, after the mischiefs have gone far ahead. Thus the system of monopolies in England fails in its attempts to soften its own tyranny. The pauperism it creates leaves its affected humanity far behind, and thousands annually perish for want of bread. Cadaverous, melancholy, and desperate, its victims are compelled to commit atrocious crimes, because subsistence is not secured to them, and the connubial comforts themselves (the strongest natural propensity) are converted into the strongest incitement to vice, by an incapacity to support a family. In the East Indies, the single monopoly of rice, murdered, in one year, five millions of people. In Turkey, the slavery of monopoly, depopulates the fairest portion of the earth, and personal slavery is the remedy for its ravages. However the account may stand between the common evils inflicted on mankind by these two sorts of slavery; if we should even doubt whether individuals suffer most under the slavery of monopoly spread over Europe, or under negro slavery in the United States, in periods of peace, yet by computing the wars begotten by the avarice of privileged orders, the doubt must vanish; and who is so blind as not to perceive the germe of this terrible evil sprouting in the U. States?

But a comparison between the slavery of monopoly and negro slavery, to display the inconsistency between declamations in favor of one, and against the other, is superfluous. In the United States these declamations flow from kindred sources, and converge to the same point. Personal ambition is the prompter, in one case, and personal avarice in the other.—They both infringe the rights of the states, and the rights of industry and property; and they must therefore meet, if successful, in an arbitrary form of government. Both have used fanaticism as an instrument. Avarice first set up the idol called banking, and assured us that it was made of gold. The nation fell down and worshipped, and consigned to it a despotic power of legislation over currency, and, of course, over almost every private interest. Shall we break this idol in pieces, or continue our adorations? This idol having failed to make the nation rich and happy, the new idol, called protecting duties, is now set up for a deity by the same kind of priesthood; and an increase of taxation for the benefit of exclusive privi-

leges and the purposes of patronage, ought now, it is said, to be the objects of national veneration.

The geographical crisis invented conjointly by ambition and avarice, is still more alarming. There was no great ingenuity in deceiving a fanatical love of money to become an admirer of banking; but, to convert a hatred of slavery into a veneration for exclusive privileges, taxation, and inflamed geographical parties, is an evidence both of great skill and great folly.—Monasticism, is, indeed, an engraver, universally employed by ambition and avarice, because there is nothing too absurd for it to imprint on the human mind.

Ambition, avarice, and this engraver, combined against our republican system, are fearful odds. The people are not yet sufficiently oppressed to be roused; private affairs absorb their intellects; and the only existing hope rests in an agricultural influence over our legislatures. That interest alone is yet able to avert the impending dangers, unless fanatical notions so difficult to be wrung out of human nature, should bind it to the chariot wheels of avarice and ambition. How specious, how apparently honest, are proposals to increase taxes for the payment of public debt! But, what nation ever got out of debt, by increasing taxes? It is simply, a sinking fund. Is the delusion of a sinking fund, yet to be detected? Every increase of taxes generates new hordes of public harpies, just as pauperism is generated, in England, by increasing poor-rates. The most successful effort to pay a national debt which was ever made, was Jefferson's combination of a repeal of taxes with economy. His successful experiment is met by its natural enemy, who exclaims, "continue and increase taxes for patronage and pay them to capitalists, pensioners, exclusive privileges, and sinecures, for, otherwise we can have no currency, we must become dependent on foreign nations, and we should wound the faith of individuals in a waste of public money." Dependence, want of money and public faith! What cabalistical words! How can such superstitions be overturned? To prove them to be superstitions is nothing. Mankind are as hardly persuaded to renounce false Gods as to worship the true one. Our republican system ought to be our political deity. If we adopt the idolatries of Europe, it will cease to shed blessings upon us. Even sovereignty, that unlimited and illimitable European idol, has been thoughtlessly imported by our legislatures, and has caused them to usurp a despotic power over the whole property of the nation. The Roman code of the twelve tables prohibited personal or partial legislation, and the subversion of this salutary prohibition was the era, from which the corruption and ruin of that republic, ought to be dated. We have unwended religion, and endowed bankers, capitalists, and soldiers. Our soldiers' endowments would be considered even in England, that country of sinecures, as an injustice to meritorious industry, more nearly resembling imperial donations to pretorian cohorts, than an endowment of the ministers of the gospel, incessantly labouring for our temporal and eternal welfare.

But when a law is passed, if it is discovered

to be a very bad one, the inveigling words "charity, confidence, and national faith" are paraded by avarice against its repeal. These are addressed to our fanaticism. They did not prevent us from wrenching our liberty from England.—They did not prevent us from unwinding a hierarchy. And shall they subject us to exclusive privileges and gratuitous sinecures?

At this very time, breadstuff-farmers, the manufacturers of the staff of life, who live fifty miles from navigation, cannot possibly make a profit, equal to their taxes, state and federal. In a great extent of country, the crop will not bear the expense of carrying it to market.—Ought not such taxation to be diminished? Ought not such unprofitable industry to be relieved from paying taxes to gratuitous pensioners and exclusive privileges? Ought not our ports to be opened to an influx of commodities, which, like an influx of money, will increase prices, supply wants, and multiply comforts? Is not our soil too poor to bear pecuniary frauds? What remedy exists for our evils but the restoration of the freedom of industry? All other projects for relieving the national distress, or saving our republican system, are, I believe, mere empiricism. But a mass of laws, flowing from the European notion, (we are too fond of notions,) of the illimitable rights of sovereignty and from the seductions of power, have met with an acquiescence founded in confidence and ignorance, neither of which are proofs of public approbation. Can it be wicked or presumptuous for the enlightened and patriotic members of the agricultural interest, to remove this double bandage from the public eye, and to awaken legislative attention to the hideous consequences of measures founded in error, and hostile to liberty? Yes, replies exclusive privileges, politics are our office, and agriculture would travel out of her sphere by meddling with them. Let her keep her eyes shut, and we will lead her.

The end of society, must be kept constantly in view, to obtain the benefits resulting from it. That is, the good of a community, and not a subjection of some men to the avarice of others. Society ought to be the equal nurse of its members; but, instead of this, avarice and ambition have converted it into a mother for themselves, and a step-mother for the rest of mankind.

The value of wealth, created by civilization, has substituted avarice for revenge, as the cause of war. From this motive, independent nations now usually wage war with each other; and from the same motive, domestic combinations are constantly waging internal wars, carried on not by the sword, but by political weapons. If these internal combinations can appropriate to themselves political weapons, as powerful in domestic warfare as the sword is in wars between nations, the rest of the community will be as defenceless as the S. Americans, when invaded by the Spaniards. The agriculturists, from having neglected such weapons, are losing their gold and silver like the unarmed Aborigines of South America. The United Agricultural societies propose to resume them, because, in the hands of the agricultural interest, those weapons may mildly restrain fraud, but can never cripple justice. Is not the mode of re-

sisting exclusive privileges, by bringing public opinion to bear on legislative bodies, preferable to any other, under the peculiar situation of the United States? They are nations sufficiently distinct to resort to the wars of the sword, invariably arising from the effects of distinct nations, to obtain or resist pecuniary advantages. Laws, extracting wealth from some states, and bestowing it upon others, will as certainly produce this species of war, with aggravated calamities, between the states as attempts of the same nature against independent nations. A union exists between European kings, but if this confederation is no security against pecuniary wars, neither will the confederation between the states, occupying a territory nearly or quite as large as all Europe, be a security against such wars, if some states are told by others "you possess slaves, and therefore exclusive privileges shall enslave you." There is no nation so contemptible as to bear such an insult long.

One would think that the U. States, in their very origin, had received a sufficient caution against the policy of establishing pecuniary combinations. Most of them were subjected to mercantile charters and monopolies, producing oppressions sufficient to have strangled them in their infancy. Common sense came in to the aid of common justice, and by abrogating those charters, saved them from a premature death. —What use ought we to make of this admonition in our own history? Ought we to resume the same policy, because it cannot now kill us, as it was near doing in our infancy, and can only subject us to the evils which it is now dispensing to the mature nations of the old world?

It cannot be denied, that a citizen who pays duties, is defrauded by those who do not pay them, even if the duties are employed for the national benefit; because he who shares in the benefit, ought to hear a proportion of the expense necessary to procure it. When this maxim is violated by throwing on a class of citizens the exclusive burden of contributing to the public expenses, and excusing another class from contributing any thing, the injustice to the contributing class is manifest. Add to it a bounty to be paid by the contributing to the non-contributing class, and it is intolerable. —I see no great philosophical distinction between political cannibals, who eat up the means by which men live, and those who eat the men themselves. In the eye of morality, the difference lies between a quick death and protracted misery. The difference in point of wisdom, between those who resign their bodies to the care of cannibals, or their property to the care of exclusive privileges, is much the same.

A foolish hope is a definition of superstition. The hope that banks would make us rich was superstition. The hope, that to make industry pay an exorbitant price for its necessities, will make them cheap after it is dead, is superstition, like the hope that donations to priests would purchase heaven. The hope, that sinking funds or heavy taxation will get a nation out of debt is superstition. These hopes create in fact public harpies, and squander public wealth.

The hope that geographical enmities will do good, is food for ambition. And the hope that exclusive privileges will sustain republican institutions is a superstition more absurd than the hope of the Indians, that their hunting grounds will be secured by their treaties, because they are deluded by an obscurity which they cannot see through, whilst we know that these institutions are preserved by such privileges, just as the Indians preserve their lands by treaties. If personal ambition should sustain the hope, that geographical enmities will preserve the union; if avarice shall sustain the hope, that exclusive privileges will enrich the nation; or if patronage and sinecure shall sustain the hope, that heavy taxation will get us out of debt, our republic is but a meteor. The danger can only be averted by expelling such superstitions from the minds of the people, that is, by drawing out the talents of the agricultural interest. If the payment of more money annually, to exclusive privileges and in taxes, than the whole amount of native exports, cannot disclose to agriculturists how they are impoverished, and detect these perfidious hopes, neither would they be convinced by a messenger from the dead.

A triple crisis calls loudly upon the people to decide, whether the despotism of sovereignty, exercised either by monarchy, aristocracy, or democracy, ever has, or ever will become the champion of liberty. A sovereignty over property, usurped by our legislatures, like that over religion, must be exploded, or we shall cease to be free. It is the moral pivot on which the prosperity of the republic must turn, and whether our representatives are sovereigns or servants, comprises the whole scope of its revolution.

RAYNAL says, "if government sets up for a judge of the abuse it will soon set up for a judge of the use of things, and then there is an end of all true notions of liberty and property. If it can require me to employ my own property according to its fancy; if it can inflict punishments on my disobedience, my negligence, or my folly, under a pretence of public utility, I am no longer absolute master of my own; I am only an administrator, who is to be directed by the will of another. He who burns his corn, or throws his money away is such a fool as is seldom met with, and therefore ought not to be restrained by prohibitive laws, which would be bad in themselves, as being an attack upon the Universal and sacred notion of property. In every well regulated constitution the business of the magistrate must be confined to what concerns the public safety, inward tranquility, the conduct of the army, and the observance of the laws. Whenever authority is stretched beyond this mark, we may venture to affirm that the people are exposed to depredation. If we take a survey of all ages and all nations, that great and fine idea of public utility, will be presented to our imagination, under the symbolical figure of a Hercules, knocking down with his club one part of the people, amidst the shouts and acclamations of the other part, who know not that they are quickly to fall under the same strokes."

This is a perfect picture of the conspiracy between sovereignty and public utility. These ideas combined, compose Raynal's political Hercules. They have begotten banking, protecting duties and pensions, each shouting public utility, and answered by their own acclamations whilst knocking down public prosperity. What a poor fund is left for the expenses and improvement of agriculture after all our exports are absorbed by taxes and these money-suckers! Can public prosperity receive a more severe blow?

It is the bad principle itself, and not its name, which we ought to keep in view. Not the name "king," but the sovereignty attached to the name, constitutes the bad principle. If kings were elective, yet if the principle of sovereignty was attached to the office, despotism must be the consequence; and, therefore, elected kings possessing sovereign power have never secured the liberty of a nation. If our president possessed a sovereign power over property, his being elective would not defeat the innate wickedness of the bad principle. As it would corrupt an elective president, so it would corrupt elective legislatures. An absolute power over property, can usurp all other powers, and legislatures, accordingly, exercise judicial powers under its auspice. Neither one man, nor any body of men, however instituted, can be invested with despotic power over national property, without destroying a free government. —This truth dictated our restrictions of legislative and executive powers though both are elective. Ought these to be superseded by substituting the indefinite rights of sovereignty for an incontrovertible maxim?

Whether you ascribe this long letter to a sense of civility, to the garrulity of age, or to zeal for the principles and propositions of the United Agricultural Societies of Virginia, you will also discern, that it is an apology for not taking a more active part in your measures, inconsistent with the capacity of my time of life, and yet an humble protest against being buried before I am dead.

I am, respectfully, sir,

Your most obedient servant,
JOHN TAYLOR.

The Hon. John Coffin, of St. John, in the province of New Brunswick, general in the British service, having requested the trustees of the Massachusetts Society for promoting agriculture, to accept for the society and for the benefit of the state, the native state of general Coffin, a valuable stud horse, five year-old, imported from England to New Brunswick, about two years since, and selected with great care from the light cart breed of horses, in the county of Suffolk, with a view to improve the breed of useful horses in this country, the trustees in consideration of said donation, have presented Gen. Coffin the society's gold medal and admitted him a member of their society for life. They have also directed a copy of the transactions of the society to be presented to Gen. Coffin, and to be continued to him as they are published during his life.

Cut Worm, and Corn Crop.

To the Editor of the American Farmer.

Fairfax County, July 2, 1821.

MR. SKINNER,

In your paper of the 15th June last a communication from Mr. Minor, detailing the management of a field for Corn and the depredation committed by the Cut Worm, has called my attention. The preparation of this gentleman for Corn gave him every right to expect a good crop—and I have no doubt he will gather a good one if he persevered in replanting, until the Worm reared to depredate—About 6 years past I prepared a field of 100 acres for Corn during the winter months—and by the 10th of May I had not more than one plant left out of every hundred. I nevertheless continued to cultivate the land and replant it—the Worm pursued me with so much industry, that before the corn could sprout, they would eat out the heart—at the end of the first week in June, I began to despair, for my harvest was nearly ready for the scythe, but feeling that the comfort of my family required of me another effort, I determined, in the language of the gamblers, “to shuffle up the cards, and take a new deal.” I then treated the field as though it had never been planted, laying it into fresh squares and put from 6 to 7 grains into each square—the weather became very warm and moist, the Worm disappeared, and a better, or earlier crop I never made—since this, I have never despaired of making a crop of corn—it is so powerful a plant, that in land deeply broken, and well separated its progress to maturity bears some comparison to the celebrated gourd vine of the Prophet Jonah.

If it be Mr. Minor's wish to avoid the Cut-Worm entirely, he must break his land before November. My experience authorises me to say that all the land broken in September, and to the 15th of October, will be free of Worm.—Where oxen are used to break land, I see no reason why it should not be broken during the summer. Land broken in July and August, will be found to grow corn more promptly and vigorously than that broken in the winter.—I stated to you on a former occasion, that corn might be made by the use of the harrow, only, after the land was well opened and harrowed, before planting. I feel it to be my duty to call in this declaration, for although I have often made my crops in this way, it is an unsafe mode in the hands of inexperience—permit me, therefore, to recommend the use of Freeborn's small corn plough twice, before the introduction of the harrow. Wishing you every success in your valuable paper,

I am, Respectfully,

A VIRGINIAN.

TO THE EDITOR OF THE AMERICAN FARMER.

CORN,

AND ITS FODDER, HOW BEST TO SAVE IT.

Sir,—Much has been said in your valuable paper about the cutting of corn in the fall. I have, for fifteen years past, cut mine off, and shall continue to do so. When your corn will bear the pulling of blades and taking the tops, you may then cut and put it on its butts, and

as much together as will let it stand firmly in cocks, keeping the lower part a little open to admit air. My system is to have no more cutters than I have hands to follow and cock, as fast as it is cut down. If your corn is late, and you fear it will be injured by frost, by placing it in cocks it is secured against it. There is less danger in Corn shrivelling, managed in this way, than by pulling your blades and taking the tops in the usual mode. My corn is husked in the field and the cocks doubled, and so they stand until fed away during the winter and spring—the quantity of feed for your stock is more than doubled, and the manure more than trebled—the whole is carried out in April and May on my tobacco lands, and ploughed in and the crop much improved by it. My mode of feeding is to draw in as much into the horse-yard as will last the horses for the night—in the morning the cattle go in and are feeding through the day, much of the stalk is eaten—this is continued as long as the fodder lasts, and then we feed our lay on the top. Straw ought not to be given to your stock in the same yard—it will prevent the stalks from being cut fine by your stock.

My corn loft is fourteen feet in width—will hold about 450 barrels, and for some years I had much corn moulded and injured in it—I placed a ventilator through the middle; since then I have never seen an injured ear in the house. There has been strong prejudices in the neighbourhood against my system—they are wearing off, and it is right they should, as I raise five times the manure my neighbours do, who pursue the old way of securing their fodder and feeding. Your fodder will not bear rick or putting in large bulk in a house—it will injure in either way—let it stand in the field and feed it away in the manner mentioned. If your cocks are kept on their butts the fodder will not injure—I speak from experience.—Those who will go on in the old track ought not to let the dew fall on their tops in the field, but take them out as they are cut, and that the same day, leaving each end of their house open that the air may circulate freely—by doing so they will cure quite green and sweet.—If they lay in the sun and dew they will be much injured by sun-burning, &c.—a wet spell while they are on the ground is ruinous to them and the blades also.

A MARYLAND PLANTER.

(Proceedings of the Agricultural Society of Albemarle.—No. 1.)

On the Culture of POTATOES, and the insect in the root of PEACH TREES.

(Read, May 7, 1821.)

WOODVILLE, May 1, 1821.

DEAR SIR,

Five or six years ago, I made an experiment in raising the Irish potato, which each time succeeded so much better than my neighbors, that I was induced in 1819, to reserve a square in my garden, of 36 feet, to ascertain the quantity it made; (although an unfavorable season for that crop) having planted more than I wanted for early use.

The potatoes were cut with as few eyes as possible to each piece, and planted in November from 4 to 6 inches apart in nine drills. The

ground was manured with three small tumbril loads of manure, in the broad cast, previous to spading. The drills were then opened from 8 to 10 inches deep, rather wider than the spade, and half filled with stable manure, after which the potatoes were planted on this, and an additional quantity of the same manure put on them until the top of the drills were made even with the surface of the square, pulling the earth over so as to elevate them 4 or 5 inches above the former surface. The whole was then covered 10 or 12 inches deep with wheat straw. No further cultivation is requisite, but should a few large weeds find their way through the straw, it would be advisable to draw them out. The produce of the square was \$19 bushels of the finest potatoes, admitted by all who saw them, they had ever seen.

From three years experience, I flatter myself that I can recommend to the Agricultural Society, a method for destroying the insect in peach trees. Remove the earth carefully from the roots of the tree, in the month of October, or after the first cold weather—pour boiling water very slowly, for twelve inches up the body with some vessel that has a spout. Bring back the earth in the spring so as to form a hill around the root of the tree.

Yours, &c.

WALTER COLES.

P. MINOR, Esq.

Sec. Agricultural Soc'y. Albemarle.

* Equal to 627 bushels per acre.

FOR THE AMERICAN FARMER.

In the report of the Cattle Show, there is some notice of an Alderney Calf of uncommon weight. The Alderney cattle, imported by Mr. Creighton, seem to be developing a peculiar fitness for this climate. The progeny of the Bull, purchased by George Howard, have been all large calves—and some of them very remarkable for size at an early age. This is particularly the case with the cross of the Alderney, with the Holland and Bakewell cows. Care and good feeding have no doubt contributed to the improvement of these animals, since their importation; but it seems too that our climate is suited to them. In the English books the Alderney cattle are characterised, generally, as rather too delicate to be propagated there with advantage, to any great extent.—But, if they should acquire with us the size and form, (in which qualities they seem in England to be inferior to other breeds,) and preserve the richness of the milk, they will certainly prove a very valuable race. That they evince this disposition to improve, will, I think, appear, from the descendants of Mr. Creighton's importation. Mr. Culley (in his work on Live Stock) remarks, that he had seen some very useful cattle bred from a cross between an Alderney cow and a short horned bull, and the finest cross of the Alderney with us as yet, is that with the Bakewell and Holland cows of the breed possessed by Gen. Ridgely, at Hampton. I have had the following dimensions of the full bred Alderney Bull Calf, exhibited by Gen. Ridgely, at our last Cattle Show.

The calf was got by a young bull soon after landing in this country, by the Alderney cow, sold to Capt. Henry Thounson, [Vide Amer. Farmer, vol. ii. page 101.] For the sake of comparison, I add the corresponding measures of a Bakewell Calf, two years old, taken at the same time. It is fair to add, that great attention was paid to the Alderney—and he was pushed by judicious feeding; and every assistance given to it—while the Bakewell was small, and had received no extra feeding or care. Your obedient servant, J. E. H. Jr.

I hereby certify, that the following are the dimensions and weight of the full bred Alderney Bull Calf, aged five months and six days—bred by General Charles Ridgely, of Hampton:

	Feet.	Inches.
Length, - - - - -	5	9 $\frac{1}{2}$
Height, - - - - -	3	9 $\frac{3}{4}$
Height behind, - - - - -	4	0 $\frac{1}{2}$
Girth before, - - - - -	4	0
Girth around the flank, - - - - -	5	2 $\frac{1}{2}$

WEIGHT, - - - - - 672 pounds.

JOHN GREEN,
Manager at Hampton.

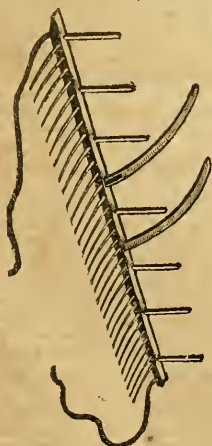
Baltimore, June 6th, 1821.

Bakewell, though of fine form, was yet the smallest of the breed now at Hampton, and had never been pushed. It is sufficient, however, to prove, what the Alderney are capable of becoming, under judicious management.

FOR THE AMERICAN FARMER.

Brandywine, 7th mo. 2d, 1821.

THE IMPROVED HORSE RAKE.



For raking hay or stubble ground, this is considered an improvement on the old plan that was lately described in the American Farmer, No. 13, of June 23, by A. Seymour, of Virginia. By the old plan, the rake is dragged over the ground like a harrow; and if made of timber, the size mentioned in his descrip-

tion, "three and a half by four and a half inches thick, and ten feet long," of heavy white oak timber, together with the shafts annexed, would act too much like a harrow, and be too unwieldy for a person of common strength to manage; it would drag much of the soil up, and mix with the hay in loose ground, such as clover on wheat land—it not having formerly, in one year, a sufficiency of roots, to stand such a harrowing operation: in fact, much of our light soils would not bear the operation without tearing up many of the roots, and consequently mixing much dirt amongst the hay.

In gleaning the stubble of grain too, which it is often used for; and in the damp of the morning, (which is the best time to save the straggled grain, being less apt to shell out,) this kind of rake drags much dirt with the rakings, and the grain is so affected with it, as to be unfit for use until cleaned in some way better than a barn-fan will do it.

The foregoing objections, as well as others, induced a trial of another mode of applying the rake, which is made as light as is compatible with sufficient strength. They are now constructed quite as simple as they formerly were; the chief difference is, the teeth are much longer, say twenty-four or five inches clear of the head—and they run horizontally under the hay; they are set in the head piece of some light tough wood, about three inches thick, by three and a half or four wide—and set the teeth in the widest way of the piece, so as to let it lay the flat or broadest way on the ground, with a couple of light handles set in to guide it, by being so much elevated, when the teeth lay flat on the ground, as to meet the hand of the operator, whether a man of full size or a boy. They are, generally, managed by the latter—as an active boy of fourteen or fifteen years old, with a plough horse or mule, would do as much business as a man, at full wages could, with one of those old fashioned heavy rakes, and do it much more to the purpose.

I must confess I could not believe, when I first heard them described, that they would answer; but, on making a little light one, which did not cost above three hours work of one man, trying it, I found it to answer the purpose so well, by putting two staples in the upper corner of the head piece, on the front side, which served to hook the horse chains to, for drawing it—by that, I never made any use of shafts.

It is the principle, that is the main object, to have the teeth to pass under the hay, where they meet no resistance; and having four or five small pins set in perpendicular on the top of the head, to prevent the hay or grain from falling over when full.

Being light to handle, the hay can be dropped at any place required, without stopping the horse.

The same process will glean the stubble of grain with despatch and effect, so that hundreds of bushels of grain is saved, that formerly perished on the field, after receiving a rain of two.

It is generally those simple implements of husbandry, that are often overlooked, which

turn to the best account, for despatch of business; and, I may say, the little horse-rake deserves a record, and is worthy of a drawing—but may, perhaps, be farther improved.

Very respectfully, from

C. KIRK.

For the American Farmer.

LIME.

Directions for burning or making it in the field.

JAMAICA PLAIN, 11th July, 1821.

Sir—

I observed in one of the late numbers of the Farmer, a wish expressed, for information of a convenient Lime Kiln, for burning lime for farming purposes; and, having recently received a paper from Nova Scotia, which contained the following article, I think it may be useful for you to publish it—it is very easily tried, and is highly recommended by Mr. Young, the Agriculturist of Nova Scotia. The writer is a respectable clergyman and agriculturist.

I am, Sir, your obedient servant,

JOHN PRINCE.

John S. Skinner, esq.

East River of Pictou, Feb. 6th, 1821.

DEAR SIR—In reading the agricultural report from Cumberland, I observe a complaint of the committee, that Lime was more sparingly applied to the soil, owing to an improperly constructed lime kiln, and a hope expressed of getting one on a new and economical construction. I make no use of a kiln in burning limestone, nor do I think a lime kiln any way necessary to a farmer. In Britain lime-stone has, for many years, been burnt in piles, on the surface of the ground. I shall here detail my method of making lime, and if you think it will be a benefit to Cumberland people, or to others, you are at liberty to publish it. I lay down the stones and coals in the field, where the lime is to be applied to the soil, or near it contiguous to water for slaking the shells.—

That the fire may have air enough, I make two small trenches eight or nine inches wide and deep, and crossing one another at right angles in the centre of the spot where the pile is to be raised, and extending thence, so as to reach the outside of the pile. These trenches are lined, and covered with thin broad stones, to prevent their being choked with small coal ashes, or fragments of the lime-stone. For a foundation to the pile, I lay a tier of logs from five to seven or eight inches in diameter, close together; (these may be much larger where coals are not used;) with one log of the same dimensions, placed upright in the centre, to facilitate the ascent of the fire, and nearly as high as the pile is expected to be. Round this log a fire is kindled, a bushel or two of coals is laid on, and allowed to burn a while to prevent suffocation, before any stones are thrown on.—Then coals and stones alternately thrown on as fast as men can work, until the pile is finished: in the proportion of one bushel of coals, to two and a half, or perhaps three of stone: taking care to be more liberal of the fuel at the bottom of the pile, and more sparing upwards as heat ascends, and the bottom of the pile is

in most danger of being badly burnt. The pile is made of a conical form, but not steep, and finally the whole is covered with small coal, one or two inches thick, and with earth four, five, or six inches thick, to keep in the heat. If the covering cracks much, I close the cracks; and if the wind blows much, I close the mouth of the trenches. This last circumstance must be attended to, for a strong wind may make the heat so violent as to run the stones into glass, in which state they will not slack into lime.

This mode of burning limestone has several advantages. None of the lime need be lost, as it is burnt on the farmer's own fields. The carts may be brought to the pile all around, and into the centre. The earth with which the pile is covered will make as good manure as the tormented earth on which you have been writing lately, or the burnt clay of which we have heard so much. Besides, by this mode, a farmer whose capital, or opportunity of burning limestone is so limited that he cannot be at the expense of building a kiln, and therefore is deterred altogether from using lime, may have his desire gratified at a very trifling expense. I never burnt limestone with wood in this manner, but I am confident it will answer; only it will be somewhat more laborious, both in making and covering the pile, as wood is more bulky than coals. The farmer should not be discouraged though the first attempt should not answer his wishes. Experience will teach him to correct errors. The limestone and fuel should be brought to the spot, and made ready in winter. As its members are numerous, and many of them men of considerable capital, the Cumberland Society may be of vast use in promoting the improvement of agriculture throughout the province. They will assuredly be so if they improve the talents with which a kind Providence has favoured them; if they pursue a rational and scientific mode of cultivating the ground; if they give themselves cautiously, yet boldly to make useful experiments, watching them in their progress, and carefully marking the results; and if they detail these experiments correctly and perspicuously to the public, through the medium of the newspapers.

I take the liberty of recommending to them to commission a complete set of the Farmer's Magazine, published at Edinburgh, amounting now to upwards of twenty volumes, and containing a vast fund of agricultural information. It may cost twelve or fifteen pounds, but the money will be well laid out.

I am, dear Sir,

Yours sincerely,

JAMES MACGREGOR.

JOHN YOUNG, Esq.

Secretary, Nova Scotia
Agricultural Society.

It is calculated by agriculturists, that an acre of ground, will support one man the year round. What says GOLDSMITH, who wrote some 70 years ago:—

"A time there was, ere England's woes began,
"When every rood of ground maintain'd its man."

POETRY.

A SONG,

TO BE SUNG AT THE NEXT CATTLE SHOW—WRITTEN BY

JOHN J. BARKER.

A Farmer's life's the life for me;
I own I love it dearly;
And every season, full of glee,
I take its labour cheerily—
To plough or sow,
To reap or mow,
Or in the barn to thrash, sir:
All's one to me,
I plainly see
'Twill bring me health and cash, sir.

To customers the Merchant shews
His best broadcloths and satin
In hopes to sell a suit of clothes,
But lo! they beg a pattern—
Which pin'd on sleeve
They take their leave—
Perhaps they'll buy—since low 'tis!
And if they do,
The sale he'll rue.
When paid, sir, with a "notice."

The Priest has plagues, as undesir'd,
When flatter'd with a call, sir,
For tho' he preach like an inspir'd,
He cannot please them all, sir;
Some, wanting grace,
Laugh in his face,
While solemnly he's prosing;
Some sneeze or cough,
Some shuffle off—
And some are even dozing.

The Lawyer leads a harass'd life,
Much like a hunted otter;
And 'tween his own and other's strife,
He's always in hot water.
For foe or friend,
A cause defend,
However wrong, must he, sir,
In reason's spite,
Maintain 'tis right—
And dearly earn his fee, sir.

The Doctor's styl'd a gentleman,
But this I bold but humming;
For like a tavern waiting man,
To every call he's "coming."
Now here, now there,
Must he repair
Or starve, sir, by denying;
Like death himself,
Unhappy elf,
He lives by others dying.

The soldier deck'd in golden lace,
Looks wond'rous fine, Iowa, sir;
But still, I envy not his place,
When batter'd to the bone, sir,
To knock my head
Against cold lead,
I never had a notion;
If that's the way
To rank, I say,
Excuse me the promotion.

The sailor lives but in a jail,
With all the risk besides, sir,
Of pillage, flogging, and of gale—
This cannot be denied, sir.
While I so snug
Enjoy my mug,
Or kiss my wife, and so forth—
When rain and storm
The nights deform,
His duty bids him go forth.

A farmer's life, then let me live,
Obtaining while I lead it,
Enough for self, and some to give
To such poor souls as need it.
I'll drain and fence,
Nor grudge expense
To give my land good dressing:
I'll plough and sow,
Or drill in row,
And hope from heaven a blessing.

Recipe for Indigestion, Cholera-Morbus, Summer Complaint in Children, or any complaint in the Stomach or Bowels, viz:

Quarter pound rhubarb, half ounce carraway seed, half ounce orange peel; infuse them in one quart best French brandy, and let them stand for twelve hours before using. For a grown person, two-thirds of a wine glass full once a day, or every six hours (if the case requires it)—and for a child, a tea spoon full taken at discretion. This mixture checks the most obstinate dysentery; keeps the bowels gently open; promotes digestion, and is one of the most effectual tonicks in all the materia medica.

THE FARMER.

BALTIMORE, FRIDAY, JULY 20, 1821.

"Thinks I to myself," I have omitted to comply with the terms of subscription to the *American Farmer*—yet I take it from the post-office, and read it with more or less advantage—Now? shall I enclose the amount to the Editor by mail, at his own risk, without further delay?—or, shall I trouble him, much occupied as he is in collecting and distributing agricultural information, to write me a duelling letter?—What says PROPRIETOR? What says CONSCIENCE?

We have now the pleasure to gratify the often expressed wishes of many of our subscribers, by inserting the concluding remarks of Mr. Quincy, on the interesting subject of *soiling*.

To the communication of C. Kirk, on the advantages of the improved Hay Rake, we have added an engraving of that implement, as represented by Reuben Haines, in a communication to the Philadelphia Agricultural Society.

In our next, if we can command as much time and room as will admit of it, we propose to take some notice of the frauds, said to have been committed by certain planters, in the packing of tobacco for this market—and, although we would cordially unite in the reprobation and punishment of all fraudulent practices, we are of opinion that the Mercantile Court of Enquiry might have found, if they had directed their investigation a little nearer home, some other schemes, and modes, and objects of *adulteration*, quite as worthy of denunciation, as the fraudulent mixture of good and bad tobacco.—More anon!!

Several samples of prodigious growths of different sorts have been left at our office this season. Amongst others, stalks of clover upwards of five feet high from the farm of M. Kimmel, Esq. in Patapsco neck—this clover grew over a hole in which an apple had been planted, and perished—it serves to show the vast importance of deep and fine tilth.

Little, or no grain of any kind has, as we are told, come to market the past week. No sales of tobacco that indicate any change of price.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua si bona norint
Agricolos." . . . VIRG.

VOL. III.

BALTIMORE, FRIDAY, JULY 27, 1821.

NUM. 18.

AGRICULTURE.

OMISSION.

As introductory to the excellent address of R. H. Rose, published page 101 of this volume, we ought to have given the following proceedings of the Agricultural Society of Susquehanna County. We the more regret the omission, as it is our desire to preserve in a connected series all the proceedings of those Societies who do us the favour to make this Journal their organ of publication.

EDIT. AM. FARMER.

The Society for the promotion of Agriculture and Domestic Manufactures, in and for the County of Susquehanna, was organized, on the sixth instant, at the Court-house, Montrose, by a large and respectable meeting of gentlemen of the county, at which time,

Robert H. Rose, Esq. was chosen president.
Joshua W. Raynsford, Esq. Secretary; and
Dr. Asa Park, Treasurer.
Cols. Frederick Bailey and Thos. Parke, David Post, Zenas Bliss, Rufus Lines, Jonah Brewster, Job Tyler, and Walter Lyon, Esqs. and Messrs. Calvin Leet and Wm. Smith, Directors.

After which the following resolutions were adopted:—
1st. That the first general meeting of the society shall be held at the Court-house, in Montrose, on Tuesday of May Court, 1821.

2d. That the annual meetings of the society shall be held on the first Tuesday of November, at Montrose, in each year.

3d. That the directors be required to draft by-laws for the Society, and present them to the general meeting in May next, for consideration.

4th. That the president be requested to deliver an address before the society, at 3 o'clock in the afternoon.

Adjourned till 3 o'clock p. m.

At which time the meeting was re-opened with prayer by the Rev. Davis Dimock.

The president then delivered an address; after which it was resolved,

That the thanks of the society be presented to the president; and that he be requested to furnish a copy of his address for publication.

December, 1820.

PREMIUMS.

The Susquehanna County Agricultural Society gives premiums for the following articles:—

For the best acre of wheat, rye, corn, oats, barley, pease, pumpkins, and common turnips—for the best half acre of flax and potatoes, and for the best quarter of an acre of ruta baga, or Russian turnips, and of mangel wurtzel, or scarcity root—for the best stud horse, mare, bull, cow, yoke of oxen, ram, ewe, boar and sow—for the greatest quantity of cheese made from a certain number of cows not less than three, and for the best cheese—for the greatest quantity of butter according to the number of cows—for the greatest quantity and best quality of maple sugar—for the best woolen cloth, not less than ten yards, manufactured in the county; for the second best ditto for the best specimen of flannel—for the best piece of carpeting—for the best half dozen pair of stockings—for the best specimen of linen; for the second best ditto—for the best coverlid—for the greatest quantity and variety of household manufactures made in one family within twelve months preceding the day of exhibition—for the following agricultural instruments: best plough, harrow, straw cutter, and machine for extracting stumps, which shall be exhibited—for the

greatest quantity of stone walls or fences, made during the present season—for the best mode of clearing new lands

All articles and stock offered for premiums, are to be deposited, or in the pens, by ten o'clock in the morning of the day of exhibition.

The premiums will be proportioned according to the funds which shall be in the Society's possession at the time of exhibition, which will be on the first Tuesday of November in each year.

The manufactured articles are to be made entirely within the county, and the animals to be exhibited for premiums, are limited to those owned within the county.

The society will be glad to receive communications on the subject of agriculture and domestic manufactures, for the promotion of which they are associated. All communications are to be made to the secretary.

The society is open for the admission of such citizens of the county as are desirous of becoming members; and it is confidently hoped that much benefit may be derived to the county from a co-operation to promote its welfare and prosperity, by encouraging and extending a knowledge of agriculture and domestic manufactures.

ELDER.—(SAMBUCUS.—*Linn.*) June.

THE virtues of this shrub, which is found in abundance in our fields, and is now in full bloom, are not sufficiently well known among us. In continental Europe it is valued, and is used with success in many diseases. Chaptal Parmentier, and others, in their admirable dictionary of natural history, applied to the arts, and to rural and domestic economy, say, that from Hippocrates down to the present day it has been employed in medicine, and its virtues and properties unequivocally confirmed by time and experience.

Its flowers are resolute, anodyne, and emollient. Infused and drank like tea, they provoke and establish perspiration in certain fevers, colds, and catarrhs; fried with eggs they are an agreeable purge; applied as a fomentation in cases of erysipelas, they reduce the heat and irritation, and prove excellent in all disorders of the skin. Warm and applied to the forehead and temples they cure the migraine. They are used in a vapor bath for swollen legs, particularly in the dropsy, in which disorder the berries, inner bark, and roots of this plant are used with great effect as a diuretick and purgative. From the berries a rob or thick juice is extracted, which is given with success in bowel complaints, and in the dysentery.

The flowers give a fine perfume to vinegar, and to wine the flavor of muscat; apples when laid on a bed of these flowers when dried, and then confined from the air, acquire an exquisite taste. A decoction of its berries dyes linen when passed through alum water, of a green brown colour; and excellent brandy can be distilled from them.

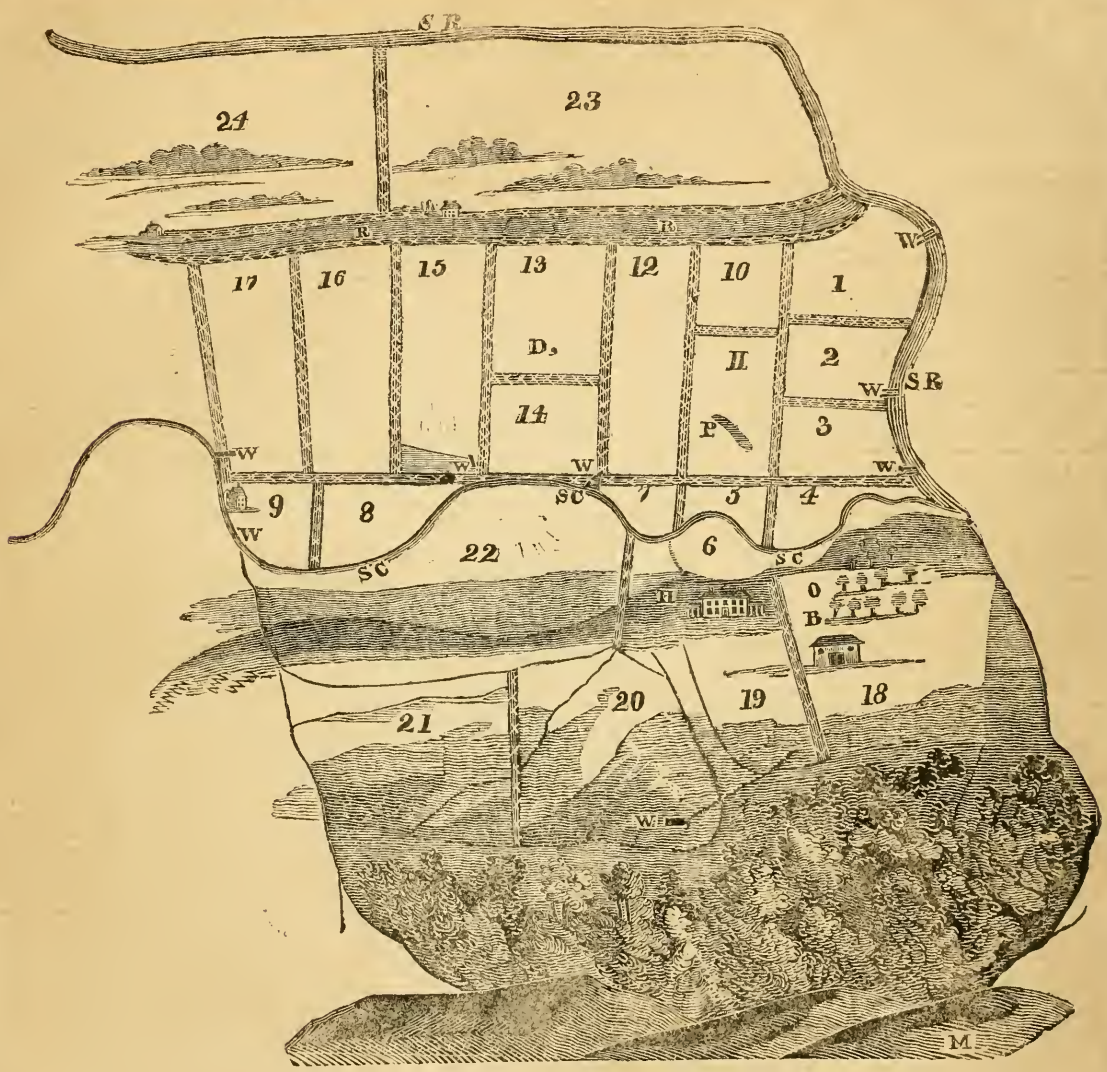
An English farmer in the county of Devonshire, in a season when the whole of the vegetation in his neighbourhood had been destroy-

ed by caterpillars, grasshoppers and other insects, observed that the Elder remained untouched, in full health and vigour; this induced him to make an experiment which was attended with perfect success. With boughs of the Elder tied together he went over his ground, whipping and brushing gently his cabbage plants, turnips, and even wheat, which drove off all the insects, who never returned. He then tried the same operation on his fruit trees with equal effect. Since this discovery has been made known, some boil the branches and leaves of this plant in water, and then sprinkle this decoction over young plants, which is said to preserve them effectually from destruction by insects. A particular account of this experiment was communicated many years ago to the Royal Society, by Christopher Gillet.

THE EDITOR'S NOTES ON THE HUSBANDRY OF SOME COUNTIES IN VIRGINIA—view of Mr. S*****'s farm in Shenandoah County.

The sketch which follows cannot properly be said to afford a view of the Agricultural practices of Shenandoah County—in as much as it relates to a farm, extraordinary for its size and fertility, and singular in many respects as well in the manner as for the scale on which its operations are conducted.—There are few of the many travellers through this rich valley, that feel an interest in the pursuits of husbandry, whose attention has not been attracted by the fine estate of Mr S*****. Its fertility is apparent to the most transient observation—as well in the amazing luxuriance of its productions, as in the prodigious droves of fat cattle sustained upon them.—The very spacious stone mansion of the proprietor, is seen from the road, occupying an elevated site from which it is obvious that with a single coup d'œil—he can distinguish every object in every field. A note from Judge H. of Winchester, whose kindness deserves repeated acknowledgements, served as my passport to an acquaintance with Mr S.—and the occasion was gladly embraced to learn the minutiae of a system, under which the productiveness of a large estate, naturally fertile, had been so much augmented—I persuade myself that the practical part of my readers may experience, at least some portion of the interest which I did in obtaining a knowledge of the facts and remarks which this sketch is intended to convey.—In the communication of details under the heading of this paper, one particular satisfaction is experienced. It is the consciousness, that the reader may rely on the accuracy of the facts—let this reflection alone, as far as may be, for the want of attraction in the manner of conveying them.—In this as in previous instances, it has been my design and endeavour to present the information I gleaned, such as it was, in the most familiar form.

The Editor is here supposed to have embodied his queries in writing and the replies of Mr S. are given as they were received. The farm is composed of several small tracts united, of all of which Mr S. had no connected survey. The sketch given was taken with the pen, but is sufficiently exact for the present design. It gives the course of the Shenandoah River, and of Smith's Creek. The great road leading from Winchester to Staunton—the shape of the highland on which the house stands, and the size, form and number of the fields on the flat land, intervening between his dwelling and the road.



EXPLANATION OF THE ENGRAVING.
The view is from the mountain in the rear, looking towards the road.
H. Dwelling House of stone; 4 rooms on a floor, and portico at each of the front and side doors.
B. Barn.
O. Orchard.
W. Watering places for Stock.
P. Pond.

D. and No. 10, dry fields.	
S. C. Smith's Creek.	
S. R. Shenandoah River.	
R. R. Road from Winchester to Staunton.	
M. The Mountain.	
LOTS OR FIELDS.	
No. 1—45 acres.	No. 6—16 do.
2—30 do.	7—12 acres.
3—30 do.	8—30 do.
4—40 do.	9—20 do.
5—25 do.	

No. 10—30 do.	18, 19, 20, 21 and 22 high
11—45 do.	and arable ground, contain-
12—60 do.	ing 420 acres, being 1035
13—45 do.	under cultivation. Between
14—30 do.	the high land and the foot
15—50 do.	of the mountain Mr. S. has
16—50 do.	1000 acres of timber land.
17—60 do.	23 Allen's land, 172 a-
— 618 of cleared	acres flat.
low level land.	24, Lee's land, 150 acres
	flat.

The flat, or low ground, as you will see by the size of my fields, is upwards of 600 acres, my high land lies all on the east side of Smith's creek, and is upwards of 1400 acres, comprising in its aggregate, all the variety of soils within the great Sheoandah valley, viz. alluvial, loam, clay, sandy bedded upon clay, a mixture of clay and sand. My fields from number 1 to 9 inclusive, are nearly the whole of them alluvial soils requiring much less attention to their improvement than land of a different character. Field No. 1 contains 45 acres on part of which are the deposits by the river in high water, for ages, of vegetable mould, part sandy and part stiff clay. The treatment of these three kinds of soils are entirely different; to improve a sandy land by any course of manuring, is almost impossible; to spread the stronger kinds of manure upon it is like adding fuel to fire. Straw, however, as a repeller of heat, and a retainer of moisture, is my remedy upon land of this character. If possible, if possible, I get them set with grass, which is a difficult matter and no way so effectually accomplished as by feeding ripe hay over them in the winter; this I have frequently done, when my land was sown down in rye, and seldom fail of success, without the smallest perceptible injury to my rye crop. The alluvial soil within this field requires but little aid, a lay of clover for two or three years, is quite sufficient to enable it to bear a succession of crops for eight or ten years. The clay soil of the same field, requires much attention to keep it on a par with the last described part. This kind of soil, however, delights in all descriptions of manure, and plaster acts well on it; nevertheless, did it not break the arrangement of my field I would place it with land of the same grade. No. 2 and 3 have had no other improvement, than being occasionally laid down in clover. Nos. 4 and 5, were originally one field, and although these fields are all alluvial soils, yet those bordering on the creek, are in their nature, vastly different from those just described on the river, not a particle of sand is mixed with the soil on the creek, on the contrary they are of a stiff cohesive character, and highly susceptible of improvement in any way. My first essay to improve my soil commenced on this field. In 1795 I got possession of part of my present estate, and to give some idea about the former cultivation of these lands, and in what estimation they were held, I will here mention, that considerable doubts were expressed about the aptitude of those low lands, particularly for the production of grass, nevertheless in the spring of that year, I sowed those two fields, then but one, with oats, clover and timothy, my oat crop was good, my clover and timothy were well set, but on mowing them in the succeeding summer, 1796, I found that although the clover and timothy were sufficiently thick on the ground, yet the quantity of hay made on each acre was inconsiderable, and far short of my anticipations. To remedy this defect, was a source of some solicitude with me, particularly as I at no time could reconcile the idea of cultivating much land for a small product, and therefore, notwithstanding my conviction, that the measure would be unprofitable in the first instance, nevertheless I determined rigidly to pursue a system of improvement, that in the end would as I believed, insure success.

In the following winter 96-7, I staled fed a large quantity of bees with hay and my cut up corn and fodder, by sowing them over the land extravagantly, until the ground was literally covered. The consequence was an early start of my grass the ensuing spring, with a considerable increase of crop. I pursued the same course for two or three more successive winters, until my crop became abundant beyond my most sanguine expectations. In 1800, I found this field completely set with the English grass, or green sward, a convincing evidence of its restoration to health and vigour; in that spring I had the sward completely turned over, harrowed well, marked out, and planted in corn at the distance of 3 1/2 feet each way, tended the corn principally with the small harrow, taking care, when ploughed, not to disturb the soil, the crop was abundant in the extreme, but as I cut up this corn, I made no kind of measurement of the product per acre. I continue this field a corn or seven successive crops, with but little deterioration of crop, ex-

cept from difference of season, until the fall of 1819, when I sowed it with wheat, and in that winter, wheat and timothy, the wheat crop was good; the clover and timothy took badly, my course, however, with this field was established, and therefore could not be discontinued. Consequently, in August 1810, I sowed better than half a bushel of rye to the acre, and harrowed it in without ploughing or disturbing the grass that was standing, with an additional quantity of clover and timothy seed, the rye crop was good, and the clover and timothy including the different seedings, was unusually well set, and although this field had borne seven successive crops of corn, one of wheat, and one of rye, yet it had by no means retrograded to its former state, but yielded me, with but little improvement, full crops of grass, up to the spring of 1817, by which time it had again become bound with the green sward. In that spring I had the turf laid over, and in every respect treated as in the spring of 1810; the result in my three successive corn crops was the same, but the crop in 1819 was not so good as the two preceding ones, owing entirely to an uncommon drought at the critical crisis of making corn. In August 1819 I sowed not quite one bushel of rye to each acre, without any further ploughing, but what had been done in laying by my corn the first of the preceding July, it was harrowed with a small corn harrow, both ways of the rows, the fall was tolerable seasonable, and forwarded my rye so as to afford an abundant pasturage for 35 beeves for upwards of five weeks. Then on the 14th day of March 1820, I turned 60 steers, designed for early beef, on those 40 acres, with the addition of 16 acres in field No. 6, and gave to each steer one gallon of meal per day, made from the corn and cob mixed with wheat chaff, during the whole time they ran on the rye, which was up to the 18th of April following, when I removed them to my pastures, but continued to feed them with the gallon per day of meal, which brought them into the beef market in the month of June following, in high credit, notwithstanding they were extremely poor when first turned on the rye in March. However injurious this treatment of my rye may appear to some agriculturists, my crop was the most abundant of the kind I ever made, yielding me from the 40 acres 1267 bushels;—*Quere*, whether the hoof of the beeves, fall and spring, was not a good substitute for the roller? which on some soils are so essentially necessary.—Fields No. 5, 6, 7, and 8 have all been improved in the same way as No. 4 and are equally productive. Field No. 9 is part of a late purchase, though of the same character as those last described, it is now undergoing the same course of improvement, and no doubts are entertained but that it will be, with a small exception, rendered as productive as any of the preceding fields.—The exception alluded to, is 2 or 3 acres, injured by the overflowing of the creek; which has swept off 5 or 6 inches of the surface of the soil, and although this is an entire alluvial soil for the depth of 4 or 5 feet, yet I find more difficulty in restoring one acre of this kind of land, to its former state of productiveness, than ten acres retaining their original surface. This fact Mr. Skinner, perhaps, is well worthy the notice of not only the theoretical, but practical farmer. It is a fact long since familiar to me, that, when by any means whatever, the surface of the soil to the depth of 4, 5 or 6 inches is removed, it is almost impossible to restore the next strata of 6 inches to a real productive condition, although it may be an alluvial soil. Will not this fact, support the conjecture, that the effects of the sun upon the surface, are so powerful as to attract the matter congenial to the support of vegetation, from the depth of 12 to 15 inches and by the arrangement of nature deposit it near the surface, leaving a space below the depth of the first 6 or 8 inches, entirely destitute of that matter; more especially as the fact is equally well understood, that the earth from a well or cellar, which, at the depth of 4 feet could not have been exposed to the influence of this cause, or the exhaustion of a cultivated surface, affords a tolerable good top dressing. I will here leave this subject in other hands and return to my course of improvements. My fields No. 10, 11, and 12 are nearly one grade of soil, viz. clay with a very inclosed-rub-

by timber principally white oak, some coarse barked hickory, very little black oak, under growth plum and hazel; part of those fields I cleared, the rest was much exhausted, so much so, that some parts were said to be burnt out. I have pursued the same course with these fields, as with No. 4 and the consequence is that in 1807 I made from the most exhausted of them, 14 barrels of corn to the acre, and the succeeding crop of wheat 40 bushels to each acre by actual measurement. In fact, I know no difference between that part of my field, that was said to be worn out, and such as I have cleared; all are alike capable at this time of producing in moderately good seasons, a succession of 3 or 4 crops of corn, of from 10 to 12 barrels to each acre; from 25 to 35 bushels of wheat, and from 18 to 25 of rye, I have made several crops of 40 bushels of wheat to the acre after corn. Fields No. 13, 14 and 15 are the largest part of them, of a character entirely different from either of the preceding numbers; their growth was swamp oak, maple, and a few pines, the under growth, alder; their position concave, and consequently received and retained the waters from the higher surrounding land; were thrown up into tussocks and so completely saturated with water, that with the exceptions of the most uncommon dry seasons, it remained on the surface during the whole year. How to reclaim and fertilize this boggy waste, was a source of considerable anxiety with me, especially as it lay within fifteen or twenty steps of my, then, dwelling house, and was moreover infested with myriads of pestiferous musquitos. My first essay to render useful this unpromising piece of land, was to grub the alders and to cut down the timber in order to discover what effect the exposure of this marsh to the sun and frost would have upon it. In 1797 I had every stick that grew upon 32 acres cut down, the brush heaped, and leisurely cleared off, logs, &c. This land as I had anticipated, became more absorbent; the maple and other roots which sustained the tussocks, began to decay, but how to fertilize this saturated, and almost barren soil, was still the inquiry. The absorbent and fertilizing nature of the corn stalk readily occurred to me, and accordingly in the winter of 1802—3 I had the stalks from which the tops had been cut, from at least 100 acres, cut and strewed over these 30 acres of wet land, permitting my stock of cattle, upwards of 200 head, to browse over them daily, and to trample them into the mud, if possible to the depth of 5 or 6 inches; my object, I readily perceived was effected, and the stalks were incorporated with the mud, and before the autumn of 1803 my doubts and fears in relation to my marsh, were entirely removed. I however, repeated the same process during the succeeding winter, which so effectually succeeded in drying up and levelling the stumps, that in the winter of 1804, 5, I fed ripe hay over the whole of it, to my stock which set it entirely with timothy and other grass, so that in 1806 it was fit for the scythe, and has ever since produced the most abundant crops I ever saw; in fact, it seldom, except in uncommon dry seasons, stands up until it is matured for the scythe.

My fields Number 16, 17 and 18 are the most elevated of any in the low ground, and were much inferior in their natural state to any of the preceding numbers, with the exception of the marsh just described. The growth of timber, dwarf white oak, black oak and pine, under growth hickory, &c., incapable, while fresh, of producing more than 5 to 6 barrels of corn, and 12 to 15 bushels of wheat or rye, to each acre, which now under the same process as upon my other field, produces in ordinary seasons, 10 barrels corn, 25 to 30 bu. wheat, and 18 to 25 or 4 rye, and very abundant crops of grass of all kinds. No part of my low land at this time, but will in three years entirely turf over with green sward or English grass—a strong evidence of their improved state.—My high land is in the same encouraging state of improvement.—My stock of cattle you will readily perceive, are auxiliaries to my system of improvement.—I am nevertheless an advocate for spreading the straw over the surface, in preference to its collection for the purpose of decomposition, particularly when it is spread on grain or grass; these will protect it from the effects of the sun.—Take for example, straw of any kind, in the months of November, December, or January, spread

it thick or but lightly, over a light and husky soil, such as very frequently, the winds in March blow from about the roots of the grain, add thereto a small dressing of plaster, and in the month of March, apply the roller—the straw will protect this kind of land from the ravages of the wind—will warm and invigorate the germs of grain or grass—the plaster will quicken its growth, and the roller will consolidate and give consistency to the whole and ensure a good crop.—Straw is equally beneficial to all soils and in all situations—I have spread it over my permanent meadows in winter, that have become bound with the green sward, it protects and warms the roots of the grass, forwards vegetation some 10 to 15 days earlier, is thereby itself, entirely protected from the effects of the sun—and its decomposition is gradually keeping the roots of the grass moist and cool in summer: requisites the most essential to the growth of grass. We will reverse the case and suppose for example, that well decomposed straw is spread upon a meadow, or grain field in Feb. or March as is a common practice, and a drought happens in April, which is not unusual, what in that case becomes of your compost?

Corn stalks spread upon grain or grass, are worse than nothing, unless they be broken to pieces by the cattle, or otherwise.—They are of a spongy nature, and in place of giving moisture to vegetation, they absorb and rob the plant of much of its support—yet when decomposed, none can be more meliorating. I am, however, far from believing that this manure is alike well adapted to all soils. Take as a further example, manures of this character, and apply them in any way please to a light and thirsty soil, and, what will be its effects? Certainly these are competent considerations in the art of husbandry, well worthy the attention of all.

Plaster of Paris.—I commenced its use about the year 1800, and was for many years amongst its warmest devotees, believing, also like many others, that its magical power would almost force vegetation from a rock: but subsequent observations have at last brought me to a pause—Its effects with me, have certainly deteriorated, and I was willing to attribute it to any cause, rather than (perhaps) the real one. To such causes as the extreme droughts for the three or four last years, &c. but while I am thus blind to its deleterious effects on the one hand, I see it operating in its full force on the other. For example, during the same period of drought, I find it to act with all its magic upon land that I have lately purchased, and on which little plaster had hitherto been sown.—I, however, cannot altogether yield my favourable opinion of this *trick*—I shall, nevertheless, in part, suspend the use of it until I can more fully satisfy myself about its effects.—Notwithstanding my doubts in relation to the effects of Plaster on some descriptions of land, yet I entertain no doubt whatever, but that there are lands on which, with judicious management, it will act beneficially for ages.—Such lands are to be found on the east side of the Blue Mountain, extending about thirty miles easterly from its top, and to an immense extent up and down.—The land of that section of country, differs materially from almost any other I know of—there is a friability and sameness in that soil to an immense depth—therefore, should the plaster have any of those deleterious effects upon the surface, it will only be necessary to set the plough a little deeper to counteract it. The slate and gravelly land, I believe also to be an exception to the (at least doubtful) effects of plaster.

Clover and other Grasses.—On this subject I feel well assured, that I differ with most *Theorists*, and perhaps many of my agricultural brethren.—Clover, to be sure, is a luxuriant and beautiful crop; highly ornamental to land that produces it well; its first growth stands unrivalled for hay, and affords a tolerable fattening pasture, provided the season be not too wet, 'till to the middle of July or first of August—its second growth, for seed and for soiling are profitable and beneficial—but for pasture, provided there be no mixture of other grass, and also provided the season be wet, it is worse than none—it acts as a diuretic on animals that chew the cud—and completely salivates horses and hogs—I never had

corn to flourish upon clover and fallow—on the contrary—should the following be deferred until spring, the earth is then filled with myriads of injurious and destructive insects, and the corn seldom wears the same healthful appearance that it does on other fallows.—Timothy, is a good grass, and yields abundant crops of hay upon soils congenial to its nature; it flourishes best, and lasts much longest when sown on a moist virgin soil—its meliorating effects upon the soil, are inferior to almost any other grass—worth but little as pasture, by reason of its not repeating, or re-producing in the same season.—The orchard grass affords good hay and pasturage, but what its effects are upon the soil, I know not—it is always (with me) mixed with other grass.—I have no experience in the herds and several other grasses.—Blue grass, so called, and I know no other name for it, is a fattening and beneficial grass to the grazer; it acts as an antidote to the effects of clover, but is a pest, if injudiciously managed, to the farmer.—White clover is a production of nature.—That bountiful Giver, seldom produces any thing which properly used, is detrimental to man. The only possible objection to this grass is, that its duration is too short.—Green sward, or English grass as also understood to be a native, (at least of this country). In this grass are all the good qualities combined, that grass can possibly possess. It affords the earliest and most fattening pasture of any other grass. The hay made from it is inferior to none, and although the bulk may be less from the acre, I feel well assured on a fair experiment, that the strength is at least equal to that of any other grass. It, like other grasses, ripens and loses its verdure in mid-summer but so long as a spire of it remains, so long will cattle fatten on it. It affords the latest and richest fall pasture of all other grasses, and when ploughed up, then at once its superior excellency is clearly developed.—Grain of every description grows luxuriantly after it, no pestilential insect infesting the plant, and its meliorating effects are permanent and unequalled.

Wheat.—With the several kinds of this grain, I am not so familiar as those are who have given their undivided attention to it. I, however, have made trials of the several kinds of wheat introduced into this country, (Lawler, &c.) and am on the whole, induced to believe that the mystery in making good crops, lays in the proper situation of seeds, their adaptation to the soil and climate they have to grow in, and in the preparation of soil to receive them. Since the year 1809, I have sowed principally the same kind of wheat, viz:—an early ripe white, with a firm stalk, a well sized head, closely set, a full grain, weighing 60 to 62 lbs. per bushel, yielding fine crops and beautiful clean straw, seldom injured by rust, and none I have ever tried, so well adapted to my soil. In 1819, part of my wheat fell down early in the season, so that the grain was much shrivelled—weighed not more than 50 lbs. to the bushel.—From this grain I selected my seed, and as usual steeped it in lye 24 hours—also at the same time, sowed a few bushels of prime wheat of the preceding year's growth, under the same process—there was no difference in the wheat produced from the old or new seed, each in quality was as good as I ever made, and in quantity from 35 to 40 bushels to each acre—I have steeped my wheat in lye for the last five or six years, as a preventive against smut, and am induced to believe, it has had the desired effect; especially as many of my neighbours are much injured by that disaster in wheat, while mine is entirely free from it. A very good farmer in the adjoining county (Buckingham) followed my course in 1818, of steeping his seed wheat in lye; he, with a view to test its effects, sowed one land about the centre of his field in the usual way,—the result was, that in all the growing wheat from that grain which had been steeped, not one head of smut was to be found; whilst multitudes were to be seen in that which had not been steeped; and moreover, from the steeped seed, stood much thicker on the ground, was better headed, and grew very perceptibly taller.

NEAT CATTLE.—None of the stock kind, so justly merits our attention as neat cattle. We eat

them, we milk them, and we work them; therefore in interest and gratitude we are bound to treat them well.

The efforts made in this part of Virginia to improve this stock have been considerable, but I am far from believing effectual; whether from injudicious selections, or what other cause, I cannot say—though sure I am, that our stock are not improving—I look back, for example, to the period at which the first English stock was introduced into this section of Virginia, which was about 30 to 35 years ago, by a son of Mathew Patton, who resided then in Baltimore, in which place, or its vicinity, he purchased an English bull, which he sent to his father on the South Branch of Potomac. The cross produced by this bull upon the native stock, possessed all the qualities desirable in neat cattle. The bull, or some of his immediate descendants, fell into the hands of Mr. Miller, a wealthy citizen of Augusta County, Va. who at considerable expence and trouble, made several other importations of English bulls. To cross upon this Patton stock, last of all, Mr. Sprigg of Maryland, imported for Mr. Miller, a large cow of the short horned breed (said to be the milk breed;) next a bull of the same stock, each of which Mr. Sprigg, in his lifetime, sold me cost one hundred guineas freightage, &c., this importation has manifestly injured our stock, particularly when they have been bred in and in. Their size becomes enormous, and coarse in the extreme, so that it is at an immense expence and difficulty that they can be fattened at all: at least, under the age of seven or eight years; and when fat, their beef uncommonly coarse and unsaleable in market. There was also a stock introduced on the South Branch, said to be imported by Mr. Gough, in or near Baltimore, which likewise do not breed in and in well. Do not these faults go far in support of the opinion, that all nature's productions, as well in the animal, as vegetable creation, cannot alike adapt themselves to all climates? I am borne out in this opinion by an English writer in Doctor Ree's Cyclopaedia, wherein he says—"In regard to cattle of our own country, as they are not less numerous in their varieties than those of the foreign kinds, and of much more importance to the farmer in a variety of different points of view, but particularly in that of profit; the greatest care and attention should obviously be bestowed on the breeding, rearing, and providing such sorts as are the best suited to the particular nature of the farm, or land on which they are to be supported and as no one particular breed is suitable for every situation or kind of farm, much circumspection should be employed in adapting them to the peculiar nature of the climate, situation and soil."

We have a further illustration of this fact, in the hogs called Parkson hogs; I happened in Alexandria, when that importation land-d in 1800 and 1801. I considered them the most perfect animals of the kind, I had ever seen and their first cross on our native hogs was equally perfect, but after breeding in and in, they degenerated into a character, vastly inferior to either of the original kinds. No fault in husbandry am I better convinced of, than that it is absolutely necessary in order to propagate a perfect stock of neat cattle a judicious admixture of our native stock ought to be strictly adhered to. My experience—and traffick in neat cattle, have been extensive—my purchases are upwards of 600 head per year, part of which I send directly on to the market. 150 to 200 head of this number I keep as store cattle, and winter them on my rough food—60 head of the smallest of those are selected and prepared in the manner already described, for a June market the balance of my store cattle are grazing up to about the 25th August; when, out of my various purchases, I select the best ones to add to the home stock, making the number of 250 to 300 head, which I fatten for market in the following manner, viz:—about the 25th of August, I divide my stock into three or more equal parcels, and turn them on my leanest pasture, or stubble field, and immediately commence cutting my green corn by the roots, now going out of the milky state, and feed it to my beesves, first at the rate of 8 hills per day, then increasing their food as I find they will

be it, up to 10 hills, of 4 stalks in each hill, per day, to each head, taking care, always, that the feed shall be so regulated as that they shall nearly eat the whole of the corn stalks, which at this season of the year contain an abundance of rich saccharine matter, so remarkable for its fattening qualities, and which is entirely lost if permitted to dry in the field. My fattening hogs are so arranged as that I can turn them in with my cattle, each day at about 2 o'clock, as the beeves feed a second time in the day on the fodder and stalks at about 12 to 1 o'clock; my hogs in number, 75 to 100, are then turned with my cattle in order to glean the remaining corn stalks, and to root and eat much of the excrements of the beeves, and are in the evening, before any cattle are fed, removed. I continue feeding my beeves in this way so long as the corn stalks retain their succulent state, which in ordinary seasons, is up to the 15th or 20th of October, by which time my cattle are fit for any market, and my hogs nearly fat, also; all from not more than 15 to 20 acres of corn. My fall pastures, during the feeding process, are permitted to grow undisturbed and by the 20th of October, are in a condition to again receive my beeves, and with the addition of but very little meal, or grain they are kept thriving until I send them to market. On the failure of my grass, I commence feeding with hay and corn meal, mixed with wheat chaff, &c.

Oxen.—The farmers of this country make little or no use of them; they are nevertheless, valuable and useful, and ought to be much more in use than they are; in fact, where negroes are the entire labourers, reliance ought to be placed on the ox for draft—the saving in their grazing and tacking is of vast importance, especially amongst those wasteful and destructive people. I have used them, but as they cannot be relied on so well as horses, in the cultivation of my corn, &c. have discontinued their use.

Horses are by no means a profitable stock but so habituated are we to the use of those animals, that we cannot proceed on our system of agriculture without them; our produce is, the greater part of it, waggoned to market, and the same horses that are necessary to haul the product of a farm to market are, generally, sufficient to cultivate the same farm.

Sheep, when well managed, are useful and profitable. If well fed through the winter, they yield double the quantity of wool, and of a strong and better texture, are earlier fitted for slaughter, and therefore, we are in turn, the more abundantly fed and clothed by them. I purchase of this stock, every fall, from 100 to 120 head; they range over my pastures during the winter, and are well fed on grain; in the month of March they are shorn and sent to market in high perfection.

The number of bushels of grain made of each of my working hands. I have never had curiosity enough to ascertain. My regular force, however, on my farm, are ten hands, occasionally calling in some aid, particularly in harvest, hay-making, fodder saving, &c.—Those ten hands with 12 to 14 horses, cultivate from 180 to 200 acres of corn, and not less than 150 of wheat and rye; my corn yields on an average 50 bushels per acre—my wheat and rye not less than 25 bushels to each acre, making an aggregate of 17,500 bushels of grain per annum. This estimate, I know to be short of the actual quantity made, exclusive of hay, flax, &c. &c.—the same ten hands thrash my grain, haul out my straw, and feed my stock in the fall, winter and spring; besides, one of them does all my black-smithing, another my rough shoe making, a third, my rough carpentering. My soil, however, it would be observed, is in good heart—I have no hindrance in hauling out manures, except from my stables. Neither am I pestered with those people called overseers. My negroes are fed and clothed as labourers ought to be, they are comfortably lodged in houses with stone chimneys; they are foxgloves in my agricultural success, and in consequence, I feel myself bound to recompense them. I find also, like other men, they are endowed with minds capable of reflection and investigation; give them fair play and I entertain no doubt, but that they will manage as well as nine tenths of those that are occupied to

drive them; therefore, policy, and humanity dictate the propriety of elevating the nature and condition of those people, as much, at least as they will consistently bear. My creed, as an agriculturist, is to make the greatest possible product, from the least possible labour, &c. A farm or individual, supporting a large, and oftentimes useless, auxiliary force, may justly be compared to a nation supporting a large and useless standing army; bankruptcy, sooner or later, is the inevitable consequence. Thus in my crude way, have I replied, in part, to your several enquiries in relation to my farm, its arrangements &c. &c. relying upon your experience to prepare them for the public eye.

There are subjects connected with your unanswered enquiries on husbandry and rural economy; that might in detail, be worth a place in your justly esteemed work, "The American Farmer," but I have been already too prolix, and am tired of writing; moreover, farmers are entirely out of their element when scribbling.

Very respectfully,

Your fellow citizen,

W***** S*****.

P. S.—I send you, herewith, one number of the Agricultural Museum, containing the weight, &c. of a bullock of my own raising, which I exhibited at the cattle show at Washington, in 1811.

This bullock, was the first calf of a mixed blooded heifer, his sire was raised by Mr. Miller of Augusta County, and was sold by him at six months old, for one hundred dollars. I gave that sum for him at four years old—he was also the first calf of a celebrated heifer of Mr. Miller's, which was out of the short-horned imported cow, and got by a bull of the long horned breed; I bred from this bull on cows of an improved stock, as also from cows of our native stock; they were all perfect in their form, but those from the native cow had an aptitude to fatten, which those from the improved cows did not possess in so high a degree. From this bull, and one of my best cows, I raised a bull, which on breeding in and in, I evidently saw that my stock degenerated, (not in size) but in disposition to fatten, yet, whenever he crossed upon native cows, the stock therefrom, was perfect. With a knowledge of these facts, were I about to propagate a desirable stock, I would first select a number of well formed native cows, on which I would breed from a bull of the largest stock of England or America, taking care, always, to retain at least one fourth part of the native stock, which could rarely fail to correct or counteract that disposition to coarseness, naturally attendant on all the English cattle that I have ever seen.

Your's,

W. S.

The following letter to the Editor, is from an highly valued friend, an officer of the Columbus, and was not intended to meet the public eye. We, however, take the responsibility of presenting it to our readers without the name of the writer—a name which, if subjoined, would give it additional interest with all who have the happiness to enjoy his acquaintance.—Here again let us emphatically congratulate the friends of Agriculture, on the generous and lively, and increasing interest which has of late years been manifested by our naval officers in the agriculture of our country. Not a ship returns from abroad that does not bring with her, valuable contributions to our stock of agricultural materials and intelligence.—Great and lasting will be the benefits that must accrue to our country from this provident and praise-worthy disposition amongst the intelligent officers of our navy.—Benefit, in which a discerning mind will discover ample remuneration for the whole expense of that establishment.—We will not pass by this opportunity of again suggesting, though not in a manner worthy of its importance, the propriety of providing out of some special fund—a small select library, for the use of the officers of each ship—to consist of elementary works on Botany, Natural History, viticulture, voyages, travels, &c. &c. Having these sources of amusement and means of edification at hand—

Young officers would have recourse to them, instead of other, and oftentimes deleterious amusements—a taste for books, and a habit of research, would insensibly grow upon them—which united with the advantages of travel into every clime in the public service, would infallibly make the most of our officers, what many of them now are, an ornament to every society, and an honour to their country.

Editor.]

Columbus, Port Mahon, Island of
Minorca, Feb. 27, 1821. }

DEAR SIR—Your obliging letter (no date) reached me at this place yesterday, and afforded me much pleasure. Among the papers which you were so good as to send me, was one containing your address to the Agricultural Society, which I have just read with high satisfaction. Your eulogy on the mule I doubt not is well deserved. In our country they are generally badly broke, half starved and seldom curried or stabled.

At Gibraltar I saw some of fine size and form, and as fat and sleek as your dray horses. They are used by the most dashy officers, for the saddle, and appeared to move very pleasantly. In Maryland, a gentleman never thinks of riding a mule—He would be laughed at—such is the force of prejudice!—I am of opinion that such mules as I speak of (14 & 15 hands high) are more proper for private carriages, if not public stages, than horses. They are true, not easily alarmed, great trotters, very hardy, and may be kept at one half the expense.

No one is a greater admirer of that noble animal the horse, than myself—I have owned some very fine ones—but I am, by experience, and a regard to truth compelled to say, that he is very expensive, and has been the ruin of many a thoughtless young buck in our country. I was much struck by the comparison which I once made of the expense of feeding a man and a horse.—The allowance for a labourer in Maryland is a peck of corn, and three and a half pounds of salt meat per week—which is not sufficient (supposing hay to be bought with the meat) to feed a horse properly, more than one day.

I found on inquiry, that the fine mules I speak of are the produce of the horse and the ass. This is a mode of propagating them quite new to me, and I am assured it is incomparably the best—if so, it is an important fact, which ought to be known to all breeders, as she asses can be kept much cheaper than brood mares.

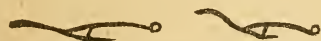
Asses and mules are used here for the plough, the saddle, and particularly for burdens—there being no carts, or any kind of wheel carriages in the Island.—The loads they carry is wonderful.—Had I not made the experiment I should never have believed the ass fit for the saddle. I have rode them frequently, and found them very pleasant and more suitable to a hilly and stoney country than the horse—I rode one about twenty-four miles in one day.

The Suck Farm you speak of will, I doubt not, be an excellent, and, I hope, profitable establishment.—I fear it will not be in my power to be of much use to you in that way—our movements are so rapid that I have little opportunity of looking out for stock. I calculate upon taking home a male jack, and a pair of the cream coloured Tuscan cattle, so famous for the yoke. Should I meet with such a horse as

You describe, I shall add him to my stud. I do not believe, however, that there is a finer breed of horses in the world, for the saddle, than the *Tom* breed in your neighbourhood, and I would recommend to you, to procure a stallion of the pure blood.

I am of opinion that the ox, for farming purposes, is superior to all other animals. In our part of the country he seldom has a fair chance, and it is no wonder that he is not a favourite. I saw many of the Tuscany oxen at work, at Leghorn and Naples. They are tall, not thick-set, and remarkably docile. In Talbot county of Maryland, they have, I think, the same breed. It is known by the name of Boardley's—and were, if I mistake not, imported by the patriotic gentleman of that name, who, some thirty years ago, wrote on agriculture and rural economy. They are much esteemed there for the draught. You may easily procure some of them if you think proper. The late colonel Smyth and Mr. Singleton had a number of them—and my brother Edward, had a bull of that breed which he esteemed highly.

I sent home some beautiful white wheat last summer from Leghorn, and if I have an opportunity, I will procure more of it. I shall take several barrels of the seed of the *Lupinella*, which is much esteemed in Italy. You already have this seed; but it is not yet abundant. My friend, Mr. Folsom, has brought me a number of seeds of various kinds, from Smyrna—among others the seed of pears and melons of a very superior kind.—I have been promised some information respecting the agriculture of this Island, by our Consul, an extensive landholder—but his numerous avocations, will, I expect, put it out of his power to furnish it. The country is hilly and rocky. The plough used by these industrious people is very simple, and suits their land. It is formed of *two pieces*, one the handle, the other the *beam*, thus :



It is pointed with a piece of iron, with a socket, resembling an ox's horn straightened—it has no share, no mould board—but a peg or station on each side, inclining outwards, intended to spread a furrow. A man follows (when seeding) digging and levelling, where necessary, with a short handled hoe, something like a pick-axe. After he is done, the ground looks like an onion-bed. To prevent their lands from washing they make stone walls round the steep hills, which are cultivated to the tops—even mount Toro, which I visited, more than 2000 feet high, is not an exception. Wheat and barley are their principal grain crops—they raise all kinds of vegetables and fruits—Figs, grapes, oranges, lemons, peaches, pears, apricots, and, what is singular in this country, excellent apples. Every thing is sold by weight—even fire wood, which is very scarce.

I was much struck with the oddity of some of their teams. Sometimes we met with an ass and a cow yoked together—then a mule and an ox, and sometimes a mule and an ass—some teams were of oxen and others of mules, as with you. (The yoke and how are used, not only for oxen, but for mules and asses.) Strange

as these associations are, they are nothing to that mentioned by Dr. Cleghorn, who wrote 50 years ago. He speaks of the *hog and heifer!* but I think he must have been mistaken.

The tenant here farms on shares. The landlord stocks the farm. Nothing is sold but by his permission, after which the proceeds, in money, is brought to him, just as received.—He divides it into two piles, and gives the farmer his choice—at stated periods the tenant has to deliver to the proprietor, a fat sheep, bullock, hog, &c. as may be agreed upon. The people, generally speaking, are miserably poor—hardly ever taste meat of any kind, and are covered with rats, filth and vermin. Every thing I have seen in this country, even the best part of it, has tended to make me think more highly of my own, and when I get home I calculate upon being a pretty good patriot. With the industry of these people, our country might be made a Paradise. We are too apt to overrate the “old countries,” and to imagine that they are happier and wiser than our own. When we hear of *grapes and oranges, and wines* as cheap as cider, we think of the Garden of Eden. In some parts of the Mediterranean, the country is delightful—the soil rich and the climate delicious—but the government is execrable—and the morals of the people corrupted.

In Italy they have the advantage of us in a few particulars—climate, and fruits of a particular kind. But what can be finer than the fruits of our country? our strawberries, our raspberries, gooseberries, cranberries, huckleberries, blackberries and many others of the berry family? Our apples, peaches, plums, &c. are, or ought to be equal to any in the world.—What country excels us in beef, pork, mutton, poultry, &c.? Is there any part of the globe which equals us in *oysters and bacon*?—and in what part of Europe is *Homing* known? If I had no other objection, this last would be insupportable to me—I would not live in any country where I could not get this dish. The beef of this Island is very indifferent—quite insipid.—In Tuscany the meats are good—the mutton in particular.—I have heard of one of our countrymen, a Kentuckian, who came out to see Europe. He landed on the high, rugged hills of Spain, opposite to Gibraltar, and looking round with astonishment, asked “is this your boasted Europe?”—“I have a better country at home”. So he very wisely returned without going any further.

We are on the eve of sailing from this place, for some part of Italy, and it is with some difficulty that I find time to write you this hasty letter, and beg you to make due allowance for my situation.—I send you a few extracts, to go used as you may think proper—they were made several weeks ago.

ON MILLET.

(Proceedings of the Agricultural Society of Albemarle.—No. 2.)

(Read, May 7, 1821.)

SPOTSYLVANIA, 7th December, 1821.

My crop of Millet did not quite answer my expectations. One and a half acres yielded 312 bushels, equal to 21 to the acre. The land was old and unimproved. Its maximum yield of corn would have been 3 barrels.

The weight of millet is 55½ pounds per bushel, and by the best possible test, viz. the scales, I find that the husk, or outer covering, is equal to 13½ per cent. being a net of 48 lbs. per bushel, nearly.

I have already used 12 or 15 bushels as food for stock. An ox fed on corn and millet meal, of equal quantities, thrives as fast as any beef I have ever seen. On the 22d ult. I weighed two pigs, to appearance, of equal size, and both equally thriving. The weight of one was 110 pounds, that of the other, 115 pounds. The first I put into a pen by himself, and fed him entirely on millet, boiled, or in meal. The other was fed on boiled corn, and corn-meal, with my other fattening hogs. Both eat ad libitum. To day I killed them. The net weight of the one fed on millet is 102 lbs.—that of the other, 86 pounds. The difference in their weight is truly surprising!!

Is the millet much more nutritious than corn? Will a hog gain more in a given time, alone, than with company? I am inclined to answer both questions in the affirmative.

I am engaged in a pretty extensive course of experiments to ascertain the full value of millet, as a grain; the result of which I shall hereafter report. Next year I intend to plant ten acres in it. In the mean time, I can confidently say it is a grain of great value, and I anticipate the day when it will be generally cultivated—if not as a staple, at least as an auxiliary crop.

We use the meal of millet as a substitute for chocolate, and really, I think it greatly superior to any substitute with which I am acquainted—“prepared rye” not excepted. I shall send some to Mr. Skinner, with directions how to make it,* and will, with pleasure, furnish you, or any of your friends, with any moderate quantity of it, if you wish to make trial of it in your family, or to plant it another year.

I am, perhaps, too sanguine, but I hope hereafter to convince the community that millet is a grain which in rural and domestic economy, yields to none of which we are in possession—not even CORN.

With much esteem,

BENJ. COLMAN.

P. MINOR, Esq.

* Note by the Editor.—The millet, roasted and ground, came safe to hand, and was prepared for use, according to Mr. Colman's directions—to wit: “Boil two or three table spoons full in three pints of water, add thereto, one pint, or somewhat less of milk, and a piece of butter the size of a nutmeg. Strain, or carefully decant and sweeten it to suit the palate.” At breakfast, a pitcher full of this American chocolate was sent, with Mrs. S's compliments, as a neighbourly offering of real chocolate. At dinner time, the mistress of the family happened in, and returned many thanks for the “nice chocolate,” never having suspected but that it was chocolate in fact! A young gentleman from the Eastern Shore of Maryland, a great lover of chocolate, very cordially swallowed the imposition. I must confess that I thought I could have told the difference; but there is much difficulty in deceiving a man if he be advertised of the intention. Epicures have been made to eat oatmeal, which they despised, for excellent beef steaks, and we have heard an anecdote of a *French cook*, who being licensed with his master, to dupe him into the consumption of his old leather breeches, for *tripe* of exquisite quality and flavor.

P. S.—On consideration, it appears to me impossible that the difference in the gain of the two pigs mentioned above, could be so great.—The net weight is certainly accurate, but I think I must have been inaccurate in weighing them alive. Neither of them could be kept perfectly at rest—and hence an error might have been made. At any rate, the one fed on millet, fatted faster than any hog I ever saw—far exceeding any of my hogs.

Extract of another Letter, from Doctor Colman, dated

JANUARY 11th, 1821.

The two hogs mentioned in my last, with which I made experiments in fattening, may be stated as of equal weight when put in the pens. My neighbours however, who saw them there, are of opinion that the one fed on millet was the smaller.

140 lbs. gross	30½ being ½ the weight
—	—
73½ net, when put up	—
102 pounds	—
73½	—
29½ lbs. gain in 15 days	—
80 lbs.	—
73½	—
12½ gain in 15 days.	—

The gain of the first is unprecedented—that of the other not small.

My ox, I fed five weeks, on equal parts of corn and millet meal, and then slaughtered him. He was prime beef, fit for any market—wt. 565 pounds, net.

Horses and stock of every kind eat millet meal freely, and I am still of opinion that its nutritive qualities are equal, if not superior, to any other grain. I shall spare no pains to make myself acquainted with every thing relative to millet. One circumstance with respect to its growth, I never noticed till within a few days, which I conceive of no small importance. The roots, instead of spreading out laterally like corn, extend perpendicularly to a considerable depth, like tap rooted plants.

Hence, the drought will not affect it much, and it will not be so great an exuberant a corn nor will it require so much work.

With much respect and esteem,
BENJ. COLMAN.
P. MINOR, Esq. ALBEMARLE.

From the Irish Farmer's Journal, of December 31, 1821.

On the superiority of the improved Short Horned over the Long Horned breed of Cattle.

THERE is no task more arduous than that of proving the general sentiments of a body of men, rest not on truth but prejudice, since custom, after a long course of years, frequently acquires a stronger possession of the mind than the most conclusive reasoning can remove.—On this account, in proving the absolute and relative superiority of the Short Horned over the Long Horned Breed of Cattle, I feel fully aware my statement will be examined by a large proportion of the breeders of cattle, graziers, and farmers in your kingdom, with doubt, suspicion, or perhaps contempt.

I wish my arguments to be fully canvassed, from a complete conviction my only object is to disseminate truth, and not falsehood, and that the first always acquires new strength and clearness from opposition.

It will appear that the following account of the origin of the improved Long Horned, that an early attachment to our own breed of cattle, ought to have influenced my mind in their favor, and nothing but demonstration itself could have induced me to change my opinion.

Many years before Mr. Bakewell exercised his great talents at improvement, Sir Thomas Glasby had selected from Lancashire and Westmoreland, a herd of the best shaped cows. Certain descendants of these were afterwards purchased on the banks of the Trent, and introduced into Warwickshire, by Mr. Webster, of Canley, whence originated the Canley breed. The breed of the county were already long-horned, but far inferior to those introduced by Mr. Webster. Bakewell commenced with Canley cows, and a bull from Westmoreland, called Twopenny. After breeding in and in, selecting individuals of the roundest form and soundest bone, he attained his desired success, in raising a variety highly celebrated for its propensity to fatten. The reality of the Bakewellian improvement of neat cattle for the graziers purpose, ought to be indubitable, from the unprecedented prices given in the midland districts. Mr. Bakewell's bull, Twopenny, covered at five guineas each cow, and he had many cows worth 30 guineas each. All his bulls were engaged, after a course of some years improvement, for the season, from five to thirty guineas each, according to their form. Mr. Fowler of Botwright, Oxfordshire, was the earliest and most successful disciple of Bakewell. He commenced with two Canley cows, for which he engaged the bull Twopenny: the produce, two cows, long horned, Beauty, and Old Nell. In 1778, he had a bull of Bakewell, named D. the sire of Shakespeare. With what success he bred entirely from his own stock, appears from the prices obtained by auction in the year 1791. The following sales are perfectly correct. The first in 1791, the last in 1810, which prove beyond a doubt that the Short Horned breed, when improved, bring higher prices than the Long Horned, after every deduction is made for the depreciation of money during that period.

The account of Fowler's sale is taken from Mr. Lawrence's Treatise on Cattle, and is as follows—

BULLS.	
Garrick, 5 years old, - - -	£250
Sultan, 2 do. - - -	230
Washington, 2 do. - - -	215
A by Garrick, 1 year old, - -	157
Young Sultan, ditto, - - -	210
E. by Garrick, ditto, - - -	152

The following statement was sent me by a friend in the neighbourhood of Darlington, and I know it to be correct.

Prices at the sale of Mr. Charles Collings, of Kettering, on the 11th and 12th October, 1810.

BULLS.		Guineas.	Got by.
Comet, 6 years old, out of Phoenix—Messrs Trotter, Wetherell & Wright, purchasers, -	1000	Favourite.	
Major, 3 years old, out of Lady—Mr. Grant, purchaser, -	200	Comet.	

Petrarch, 2 years old, out of Venus, - - - - -	365	ditto.
Alfred, 1 do. - - - - do.	110	ditto.
Duke, 1 do. out of Dutches, -	105	ditto.
Young Favourite, out of Countess, a calf, - - - -	140	ditto.
George, ditto, out of Lady, -	130	ditto.
Cecil, out of P'cess, a calf, -	170	ditto.

Prices of the Cows at Mr. Fowler's Sale:

	£	s.	d.
Brinded Beauty, by Shakespeare, -	273	0	0
Sister to Garrick, - - - -	120	0	0
Nell by ditto, - - - -	136	0	0
Young Nell, - - - -	126	0	0
Black Heifer, - - - -	141	0	0
Dam of Washington, - - - -	194	0	0
53 Head of Cattle, produced at Mr. Fowler's sale, - - - -	4289	4	6
61 ditto, ditto, at Mr. Charles Colling's, - - - -	7579	8	0

Cows sold at Mr. Colling's sale.

	Guineas.
Countess, - - - - -	400
Lady, - - - - -	206
Laura, - - - - -	210
Lilly, - - - - -	410
Lucilla, out of Laura, a heifer calf, -	106
Celina, out of Countess, by Favourite, -	200

It hence appears that the public sale of Mr. Charles Colling's, which was injured by the circumstance of some of his cattle having been crossed with Highlanders, brought much higher prices than Mr. Fowler's, and affords a strong argument in favour of their superiority. Mr. Mason has let his best bull this season for 260 guineas. It is evident from a perusal of the reports from our best grazing counties, that the improved short horned are more highly valued than any other breed.

Having given an account of the prices for which the short horned breed were sold, at the respective sales of two of the most eminent breeders of their varieties of cattle, it remains to contrast the weight of the two varieties.

In the early propensity of the improved Short Horned to fatten, every doubt must be fully removed, since Mr. Lawrence, who appears an advocate for the Long Horned, makes no mention of any Long Horned steer being fat at the age of two years. He says—"Mr. Princeps killed a four years old steer, which weighed 248st.—14lb. to the stone—exclusive of 25 st. of fat—Hide weighed 177lb." This is the only weight of any long horned steer he mentions, and surpasses in weight any of the short horned mentioned by Bailey.

In the same work he states Shakespeare sold at Mr. Padgett's sale, for 400 guineas, in 1795, and his stock brought from 50 to 80 guineas each. Mr. Arrowsmith has lately rated one of his two years old steers to the weight of 160 stone, which is a much greater return than Mr. Princeps's. He has long been an improver of the short horned.

Independent of any arguments drawn from the superior prices, more than double, of the improved short horned over the long horned, the fact that the late George Culley, esq. after commencing with the long horned, changed for the improved Teeswater, must carry considerable weight with every one to whom his character is known. He travelled with Mr. Bakewell many years, and from him acquired his knowledge of breeding. He was attached to the long horned stock of cattle, and Dishley breed of sheep, with his master.

The last stock he introduced into Northumberland, from Dishley, and has enriched that country amazingly by it. He had renounced the long horned some years before his death, from a conviction that the improved short horned were more lucrative, in consequence of their early propensity to fatten.

His sale proved he had by no means equalled Mr. Collings or Mason in his improvement. Had he commenced at an earlier period, such was his knowledge of stock, it cannot be doubted he would have raised one of the best in the north of England.

Whether we consider the conduct of one of the earliest of Bakewell's scholars—the astonishing prices the Teeswater cattle have been sold for—their very early propensity to fatten, and the small quantity of food they consume in proportion to their weight—the inference that they ought to be introduced into every stock district cannot be doubted.

If the question is put, by what means can the breed be introduced into your kingdom, since some of the present improvers refuse to sell any? I would answer, purchase those which have been bred for some years with the best bulls in the district near Darlington, and endeavour by proper selection and choice, to form for yourselves, with care and attention, a breed which in time may perhaps not fall much short of theirs.—To effect this, Societies of rich capitalists should be formed, chiefly by landed proprietors, for the express purpose of introducing these, and every other profitable and valuable breed into the country. When this has been accomplished, they ought not to act merely like monopolists, but disseminate them to the utmost of their ability. In this view the Earl of Lonsdale may be considered one of our most useful improvers in this county, since he sells to his tenants his short-horned stock, some of which were purchased at Mr. Charles Colling's sale, for fair prices.

We are happy to observe so much attention paid to stock, in the account of the show of cattle given in your paper, and trust a co-operation amongst the friends of the breeding interest in Ireland, will soon place you in a situation to cope with this kingdom. Providence has in general been more liberal to your nation than to ours, and if you are not wanting to yourselves, the time is not far distant when the glory of Ireland will equal, if not surpass, that of any other country.

It has gratified us highly to observe the improvement of your present race of Long Horned steers, and trust no exertion will be wanting to carry to the highest state of perfection every part of your agricultural and rural economy.

A sincere well wisher to your kingdom,
P. SIBSON.

Canony, Maryport.

BERGAMI—HIS STOCK, &c. &c.
Extract from a letter, to the Editor, dated
JULY, 1821.

Bergami was calved in May, 1819. he ran with his dam until November, was fed three times a day with hay, two quarts of ruta hage, and half an handful of Indian meal throughout the winter—in April he was put upon Old Sward—since December he has had ruta hage meal, or shorts, in small quantities as before.

I attribute his extraordinary weight, fine bone, round barrel, long frame, deep chine, broad buttock, thin horns, small tail, clean chaps, wide chest, and docile disposition, to the well established characteristics of his race.

I have not the slightest doubt; that his progeny will be marked by the excellence of the cow, and the singular points of the bull from which he sprang; although, as I have repeatedly said to you, I never have, and never will pledge my veracity for the purity or pedigree of any family of animals, as it must often depend upon circumstances and accidents, which no man can control. But I honestly think, that on the Banks of the Tees, surrounded by the descendants of Comet, Bergami would be exceedingly admired.

The following extract will show that his family have all the claims of a long line of distinguished ancestry.

"MAY 25th, 1821.—Sir, I had the pleasure of receiving a letter from you on the subject of

cattle and sheep, and agree with your description of the different breeds of cattle in the North of England; I think it a more exact detail of the different points, than any I have heard—our cattle have stood the test for a long time. My father made two importations—the first a bull (full brother to the Barningham ox) and two cows—the next year he again imported a cow with calf, this was a bull—the cattle, though of the same kind of stock, were unconnected as to relationship—through this means we have kept the breed pure by attention in crossing."

The Barningham ox of five years, (according to Bailey's Survey of Durham) weighed 150 stones and 4 lbs.—16 lbs. to the stone—2101 pounds, free from tallow, hide and offal—his tallow weighed sixteen stone—236 pounds.

Flora, the dam of Bergami is but four years old—she received the male at ten months—produced her second calf in August last—within a week she will have a third. She has been regularly milked, and now yields generally two quarts at a meal, although she is allowed to graze but five hours a day, lest she should become too fat to calve safely. Sophie, an heifer of the same stock, lost her first calf in April, from excess of fat: although killed in extraction, it weighed 104 pounds. Notwithstanding the injury she received, she has regularly given, as well as can be ascertained, by repeated measurement with a stamped mug, from 19 to 21 quarts of rich milk, free from froth. Nell, another of the same breed, two years old in April last, calved in March, and has since yielded from 19 to 20 quarts a day. Countess, her mother, gave milk on the night of the birth of her last calf.

According to Wilkinson, and the most successful English breeders, the great object to be attained was the union in the same animal, of the disposition towards copious secretions of milk, with tendency to form fat when dry. Sophie, though so fat as to cause the death of her calf, and Nell, who was scarcely thinner, are now so poor as to excite the sarcasm of a dilapidated farmer, who accused me of starving them.

CURWEN.

THE FARMER.

BALTIMORE, FRIDAY, JULY 27, 1821.

By a mistake of the Editor in arranging the copy for the printer last week, the dimensions of the Bakewell bull with which it was intended to compare the Alderney calf, were omitted; by reference to that number page 155 this comparison may now be made.

BAKEWELL Calf.

	Feet.	In.
Length	6	—
Height	4	2½
Do. behind	4	4½
Girth	5	5½
Do. around the flank	5	4½

Weight 784

"Bakewell though of fine form was yet the smallest of the breed now at Hampton, and had never been pushed. It is sufficient however to prove what the Alderney are capable of becoming under judicious management."

Note by the Editor. The Bakewell cattle appear to be entirely abandoned in England not a word in relation to them in their agricultural journals. The contest is between the Short Horns and the Herefords

and the Devons—but at a late Eng. cattle Show, the first one held by the Board of Agriculture, Lady Ongley took a premium of 30l. for her Alderney Bull. The Bakewell cattle were found to lay all their fat on the outside, they do not "marble." The Cows go dry early, and often miss being with calf, and the bullock does not come to maturity so early as the short horn. It is thought that if Bakewell had selected the Holstein instead of the broad horn stock, to build his improvements upon, his great labours and his science would have been more advantageously employed.

RUTA BAGA.

We understand that Mr. Curwen writes from England to his friend at Washington, that a crop of Ruta Baga lately produced thirty-two and a quarter tons of tops per acre, on a field of 40 acres: and his friend dwells very justly, we think, upon the great value of the turnip crop, as an immense source of food for cattle, and manure for land.

PRICES CURRENT.

Flour from the wagons, \$1 25 a 4 62½—Whiskey from do. 26 cts. exclusive of barrel—Wheat, white, 90 cents—Red, do. 85 a 87 cents—Corn, 42 a 44—Oats, 27 a 30—Rye, 40 a 41—Hay, per ton, \$18 a 19—Straw, do. \$9—Cod fish, per quintal, wholesale, \$3, retail 3 50 a 34—New-England Beans per bushel, \$1 12½—ditto Peas, 75 cents—Plaster in stone \$6 per ton—do. ground, \$1 35 per barrel, 33 cts. per bushel, \$8 per ton—New-Orleans sugar, \$9 to 12 50—Muscovado, do. \$9 a 12—American White Lead, \$12 50—Ground do. 13 a 14—Linsseed Oil, 75 cents—Feathers, 40 a 45 cents—Shad, new, \$6—Herrings, \$2 a \$3 25, declining—Fine Salt, 55 cts. per b Ground Alum do. 55 a 60—St Ubes, 60—Cadiz, 50 a 55—Turks-Island, 75—Live Cattle, \$5 a 5 50—Beef, 8 to 10 cts, Hams, 10 a 12 cents—Middlings, 10 cents—Butter, 25 cents—Peas 50 cents per bushel—Eggs, 12½ cents—Cheese 8 a 10 cents per pound—Tar \$1 50—Turpentine, 1 87½ a 2—Pitch 2½—Rosin, common, \$1½, bright do. \$3 per barrel—Varnish, 25 cents—Spirits Turpentine, 33 cents per gallon—Cotton, (good Upland) 14 a 15 cents; very dull—Rice 3 a 3½ cents—Ship and Flooring Plank, \$25 a 27—shingles, best 6½ a \$7, common, \$3 to 4½ per M.

Early Cabbage Seeds.

THE subscriber has received per ship Mary Ann, from Liverpool, a fresh supply of those very excellent seeds called

Early George and Wellington Cabbage, each kind of which possesses the following qualities: they produce very genuine plants, which are very hardy in standing the winter, and they make cabbage from a two to three weeks sooner than the Early Yorks.

These seeds are the production of a gentleman who has discovered the method of raising them so as to prevent any of the plants from running to seed in the spring.

In confirmation to the above I here subjoin the testimony of some of the most respectable gardeners of Baltimore market, who have made use of it two or three years.

BALTIMORE, July 14th, 1821.

We, the undersigned do certify that the seeds called Early George and Wellington Cabbage, which are imported and sold by Samuel Ault, are of the very best quality, being very early and genuine; & likewise very hardy in standing the winter.

John Mycroft

Thomas Lewis

Edmund Evans

Peter Hatman

Samuel Register

Valentine Lutz

The price of the above seed is 50 cents per ounce—the ounce will yield upwards of 2,000 fine Cabbages—the time to sow this seed is the beginning of September—Sold only by SAMUEL AULT, & Co. No. 1, Market-St. and by the subscriber, Bridge-St. (two doors above the Independent Fire Engine House, SAML AULT.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua et bona norint
Agricolae." VINO.

VOL. III.

BALTIMORE, FRIDAY, AUGUST 3, 1821.

NUM. 49.

AGRICULTURE.

MARYLAND TOBACCO.

The proceedings of some Tobacco Shippers and Dealers, and the Report of a grand jury of the City of Baltimore, in relation to fraudulent packing and imperfect inspection of Maryland Tobacco, with remarks thereon by the Editor.

Our readers will perceive, from the following Report, that the general statements, publicly made, in a moment of much excitement, by a Committee of Merchants, are not sustained by the more deliberate Report of a Grand Jury, acting under the sanctions of authority. Indeed, they will even find the opinions of the mercantile self-constituted court, contradictory in themselves. And they will bear in mind, that the evidence before the grand jury, as to fraudulent intentions, being entirely ex parte, is very far from being conclusive, as to any case.

REPORT AND PROCEEDINGS

OF SOME MERCHANTS.

According to appointment, the adjourned meeting of the Tobacco Shippers and Dealers was held at the Baltimore Exchange, on the 6th of July, 1821, when the committee appointed at the former meeting, to take into consideration the fraudulent modes adopted by many planters in the packing of their tobacco, and to devise some plan to detect and prevent in future such iniquitous practices, delivered in their report, which was read, and after some amendments, adopted as follows—

The Committee to whom was referred for consideration the fraudulent practice of false packing of tobacco, and for devising a plan to detect or prevent it in future, beg leave to Report—

That they have investigated the same as far as laid in their power, and find that the practice has prevailed to an alarming extent, and calls for the firm, decided, and immediate interposition, not only of the shippers and dealers, but of the honest and upright planters, as well as all those who are at all concerned in the purchase or sale of the article. In the course of their investigation, they have found, that in 17 hhds. of tobacco that have been reviewed at Dugan's warehouse, Roderick Dorsey, inspector, only 4 hhds. have been discovered free from imposition, and that in 19 hhds. reviewed at Calhoun's warehouse, Richard Makall, inspector, only 9 hhds. have in like manner, been found correct. In many instances, the injury sustained has been excessive, and in all, by no means trifling.

The investigation has been confined chiefly to the yellow and finer kinds of tobacco, and to the inspection houses mentioned above. But the committee are aware that the evil is not limited to these particular cases, but that it extends in some degree, to nearly every part of the state, and to almost every quality of to-

bacco. The result of the investigation above alluded to, is not only known to the committee, but has been witnessed by a numerous assemblage of their fellow citizens, among whom are some of the most respectable planters of the state.

To check this growing evil, which there is strong evidence of its having long existed, to separate the honest from the fraudulent planters, and to protect and encourage this staple of our state in its fair condition, is the duty of every good citizen. The remedy is, and always has been, completely within the power of the inspectors, whose carelessness and constant anxiety to obtain patronage, has, no doubt, greatly contributed to encourage this practice.

The committee, therefore suggest the following plan. That an instrument of writing be drawn up, and signed by the shippers and dealers, pledging themselves to report any remissness in the inspection, or fraud in the packing of tobacco, that may come within their knowledge, to a general meeting of those interested in the subject, to be held on the first Thursday in every month, to be acted upon as may hereafter be deemed advisable. And that it be recommended to the inspectors to break every hoghead in five different places, and that two of the breaks be at least within six inches of the ends, and one bundle from each exhibited as an average of the contents of the hhd. The committee are induced to hope, that these precautions, if fairly tested, will at least give a temporary and partial relief. They are rendered necessary by fraud and deception, and are in the opinion of the committee, the best remedies that can be applied, until the legislature, in their wisdom and justice, pass more efficient laws on the subject.

The committee advise some further forbearance, for the present, in publishing the names of those whose tobacco has been found defective, for with some it may have originated in circumstances beyond their control, who may come forward and make good the deficiency, and such as do not, can hereafter be exposed. All which is respectfully submitted.

The following resolutions were also adopted:—

Resolved, that a committee of three be appointed to wait on the tobacco shippers and dealers for their signatures to an instrument of writing for the purpose of carrying into effect the provisions of the above report.

Resolved, that the foregoing proceedings be published.

THOMAS TENANT, *Chairman.*

O. F. MAGRUDER, *Sec'y.*

The above Report, which has been widely circulated by some merchants of the City of Baltimore, is so well calculated to do much injury, by bringing a staple commodity of this state into general disrepute,

by publicly casting the most unwarrantable imputations upon the character of a great portion of our Agricultural fellow citizens, and by impeaching the conduct of many most faithful public officers; that we feel it to be our duty, to submit it to our readers, in connection with an admirable report, on the same subject, solemnly made by an intelligent and impartial grand jury.

REPORT

Of the Grand Jury to the Judges of Baltimore City Court.

Frequent complaints having been made in this city, by the shippers of tobacco, of losses sustained by them to have been sustained, in very many cases, where the article, when examined in the markets abroad, was found to be greatly inferior to the samples by which it was sold in this country, considerable public excitement has manifested itself on this interesting subject. We have, therefore thought that an investigation of the causes of complaint, came properly within our province, and made a part of our duty. Under this persuasion, we have judged it expedient to direct a diligent and impartial inquest to the mode of inspection hitherto adopted in the different warehouses in the City of Baltimore: justly presuming, as we think, that the injury inflicted upon the sufferers, would be found to have originated, either in imperfect and inefficient legislation, or the negligent performance of the duties prescribed by law.—Of the first evil, at least, we very confidently affirm the existence.

We find, on enquiry, that here, as elsewhere in all the warehouses of the State of Maryland we believe, it is the custom of the Inspectors to make three *draws*, as they are termed, from each hoghead of tobacco; and in doing this, there is a general uniformity of observance as to the places in the tobacco, when stripped, where the draws shall be made. In not many instances, as we are informed, has it happened, that the planter has complained of the Inspectors disposition to favour the purchaser; in some, the dealers have thought the parcel not quite so good as the sample.—In all cases, it would appear, where direct intimations were given to the Inspector of evidences of an attempt to deceive by putting inferior tobacco in parts of the hoghead where draws were not usually taken, more breaks than three have been made, and proper pains bestowed to get a fair sample of the whole. Such is the nature of the tobacco business, that the greater part of the finer kinds comes to the warehouse at one season of the year; so that at that particular time, a press of business, it may be allowed, will not always permit the Inspectors to exercise such a vigilance, as will enable them, at once, to perceive and detect attempts to deceive; yet, in the progress of our inquiries, we have found instances of detection by the Inspector, where no previous suggestions had been whispered in his

ear. In this detail of the manner of performing their duty, we think we can discover nothing which ought to bring direct censure upon the Inspectors. The law and long established usage, prescribe *three breaks*, except when there are reasons for suspicion—the law lays no obligation on the Inspector to furnish a sample, good or bad; nor does it identify the particular places from which the samples shall be taken.—We can readily conceive the difficulties under which any Inspector would labour, who should undertake to differ from his brethren, by subjecting every hoghead to a severer ordeal than they, and who could justify himself in this departure from the ordinary rule, only by declaring his suspicions of every planter who sent tobacco to his warehouse. To this may be added the consideration of an occasional difference in judgment allowable to an Inspector of Tobacco, as well as to others.

On the subject of *false packing*, and the charge of *fraud*, we beg leave to observe, that the first is a term so indefinite, we scarcely know how to make such a report as shall be satisfactory. The impossibility of ascertaining how much of design may have, in any case, entered into the operation by which *false packing* has wrought injury to the dealer in Tobacco, makes us hesitate. Of *fraud*, where it has been direct and manifest, the instances, though too many, are yet so few, that our enquiry leaves the general character of the planters of Maryland, as honest and high as it was ever supposed to be. A planter, we conceive, has a right, by law, to put what kinds of *sound* Tobacco he pleases in a hoghead; and a right, by law, to place it where he pleases in the hoghead, because he does so at his own risk; and he ought not to be lightly accused of intentions to deceive, inasmuch as it is the Inspector, and not the grower, who fixes the quality of the article. The law does not say how Tobaccos, of different qualities, shall be arranged by the packer; nor does it permit the planter to sell his judgment with his crop. It is quite probable that some planters have suffered in their reputation, by the kind of compact made with their overseers, who, not unfrequently, have a certain share of the crop, as part of their hire, and who will use expedients to ensure its passage in the warehouse, which their more honourable employers know nothing of, and which they would be the first to condemn. We would also observe, that where a poor man has but one hoghead to sell, it cannot be expected, all, to be fine alike; and, we conceive it would be unjust to refuse him admittance to an inspecting house, because his Tobacco varies much in quality. *Trash*, both stems and foreign substances, has been reported to us as having been found, on a more strict examination, than was expected, but this has seldom occurred; and the discovery has been made, as indeed in most of the frauds practised, in the fine Tobaccos. It is necessary, it would seem, to nail one head of the hoghead more than the other, and the laborers, in the warehouses, have been in the habit of opening the opposite head as the lighter task: advantage, in some instances, has been taken of this well known circumstance, and very inferior Tobaccos have been found to be packed closely and hard upon this head, so as to put it all below the break.

It becomes our duty to state, that we have heard of no instance of a dealer's having changed his samples of Tobacco; or of his having, in any manner, practised fraud upon the shipper, in any matter or thing connected with, or involved in, this report.

With sincere pleasure we conclude our report, by observing, that the reforms recently made, by common consent of the Inspectors, in the different warehouses in this city, and the increased vigilance exercised to detect impositions, and to give a true character to one of the most valuable products of our State, are likely to shield all future purchasers from loss by successful frauds, or unintentional misrepresentations. It remains, only, for the Legislature of Maryland so to modify and amend the existing laws to regulate the Inspection of Tobacco, that all the parties directly concerned in its provisions, shall have their several duties and obligations clearly explained and strictly defined.

CHAS. WIRGMAN,

Foreman of the Grand Jury.

Now, although the declaration, that Tobacco, upon examination in foreign markets, was frequently found to be very inferior in quality to the samples by which it was sold in this country, very naturally, and properly, called the attention of the grand-jury of the city of Baltimore to the subject, and drew from that tribunal a public statement replete with information, and marked by good sense.—Still we deem it advisable to add a few observations in further illustration of the matter, and in accordance with their opinions.

Persons, who are well acquainted with Tobacco, know, that it spontaneously undergoes repeated changes or "*evolutions*;" and that the article will be improved or injured, by that which occurs in the hoghead, whether it be in a warehouse or on ship-board, according as the parcel may have been previously well or ill managed, and judiciously or unfortunately packed.

After it has been well cured, Tobacco ought to be prepared in bulks for the cask: for if it is prematurely packed, or when but a little too wet, it will undergo, in the hoghead, an injurious change. Such Tobacco must eventually prove inferior to the sample, if it was inspected immediately or soon after it was packed. To prepare Tobacco in a way to have its quality improved in the hoghead, is a critical undertaking; one, which cannot be uniformly and successfully conducted, without much experience and unceasing vigilance. And in the liability of the article to natural changes, we think unprejudiced persons will perceive an abundant and innocent cause of nearly all those injuries which too careless shippers have sustained by variations in quality.

Again, those who have frequently seen Tobacco inspected, may have remarked, that, although but three breaks were usually made on each hoghead, yet these places could not be precisely anticipated by planters; because, independent of the difficulty of originally judging as to the compression under the prize, they must also conjecture rightly as to the stature of the laborer, by whom it might be opened, for the obvious reason that the breaks, made by tall or small men, would be in different places.

Still, we do not hesitate to believe, that in some few cases, common or even trash Tobacco may have been purposely packed along with the best, so as not to be discovered—for who can permit himself to doubt that fraud will be attempted, and sometimes successfully practised, by dishonest persons?—or point out an employment that guards its every follower from the commission of crimes?

Nevertheless, a few instances of fraudulent intentions, partially carried into execution, cannot justify some merchants of this city, in adopting and publishing a REPORT, calculated to degrade, in every market, a most important export of this state; nor sus-

tain the imputations which they have cast upon the great body of its planters, and all of the inspectors.

To us it appears very strange, that their Report should advance such charges, and yet present the most conclusive internal evidence by which to repel each of the allegations.

Yes! in the same report we find them accusing every Tobacco inspector in the state of holding out encouragements to the commission of frauds, and then soliciting some of those inspectors to alter an immemorial practice, and establish a better usage, without expressing a doubt as to their immediate and cheerful compliance! We next find them reproving with great complacency in the confident expectation of procuring amendments to the Tobacco inspection laws to be passed by a legislature, composed, in a great part, of the immediate and faithful representatives of Planters, whom they have so lavishly abused! And, finally, they even tell us, that "they expect, in the few cases in which Tobacco has been found defective, the planters will make good the deficiency, as it may have originated in circumstances beyond their control." Thus do these gentlemen conclude, after much ado, as we sincerely wish they had begun.

For what becomes of the disposition to encourage fraud, as imputed by them to honorable officers, when we test the accusation by the Report of the Grand Jury, or couple it with their own application to the inspectors in this city? And where shall we find the proofs of that alarming necessity, which calls every good citizen, "*en masse*," to aid the separation of the honest from the fraudulent planters?—to bring out the virtuous but reluctant few from among the wicked and appalling many! Why make this strange appeal?—this thoughtless attempt to create boundless fears!

In this avicious age, reputation has been too often improperly and lightly impeached. Moral Wealth ought not to be violated, and we hope that hereafter it may not be, with safety by any individual, or any association, however respectable, even under the specious pretext of exposing frauds, since these may be detected under the operation of our laws, and their perpetrators be punished by our competent tribunals. In our commendable attempts to remove every obstacle that can prevent the fair acquisition of property by the industrious and honorable of every profession, let us beware, least we commit far greater outrages than those which we propose to remedy.

If a different spirit had characterised the Report, which we have reviewed, one might have supposed that its authors were exclusively prompted to its adoption, by a resistless love of justice; and we might then have expected to see many mercantile and other practices exposed, which rumor with her ten thousand tongues, has often muttered in our ears. We might then have heard why India Piece Goods became every year shorter, whose narrow and indifferent, and yet were sold by those old names;—and how it came to pass that more Young Hysons could be imported into these United States than ever grew in China! We might then have heard why Dry Goods brought from the continent of Europe, were always shorter than the measures marked thereon!—and why even those sent to us from Great Britain, are ever finest in the parts exposed to view! We might then have learned by whom most wickedly sophisticated mixtures have been pained upon the sick, for generous, undiluted wines! In what a "*pretty pickle*," we should have seen those who add vinegar to Vinegar! How those would have been *peppered* who sell muck for Mustard!—Others would have been well *talked* who mingle lard in our Soap! And we should have seen some pointed to the life who put lead into Vermilion! They would have *roasted* our palid Bakers, "who convert the staff of life into a crucible to help us onward to the grave!" by putting allum into Brad! Our Tailors would have been well *basted* for piecing our capels! And our Stout Brewers might have rued the time when they put wormwood into beer! Nor would the nam of that meek man have been withheld from public view, who daily tells his boy to add the sugar, gravel the coffee, water the rum, and then come in to prayers!

Then these associated gentlemen, wholly intent upon the establishment of fair and open markets in every part of this very reputable state, would also have told us how to guard our Agriculturists from being sometimes injured to the full value of entire Crops, by those forestallers who *oustrip the mail*, whenever fortunes may be wrested in an hour from the hospitable and unsuspecting Cultivators of the Soil.

And, as to the conduct of ALL of the Tobacco dealers, we possibly might not have had such positive assurances of its strict and *invariable* propriety if Planters had assisted in framing a Report, on their actions, for the public eye: nevertheless, we wish to believe the favourable statement given of their conduct. But still, as it has been remarked to us, that Dealers might easily convert a hogshead of good Tobacco into samples, by which to sell much inferior qualities, we feel it to be our duty, as we are about to give our advice to those who are most deeply interested in the commodity, to entreat them to commence at the beginning, and persevere until the end, in the good work of reform.

To our Planters, we feel no hesitation in saying, that they will best consult their interests, by carefully selecting their yellow from their red, and their red from their dull Tobacco; scrupulously packing their crop separately from their second quality; and rigidly rejecting every particle of trash, of which they need make very little or none, if they would top their growing plants low, and prime them, *i. e.* remove the bottom leaves, which, after having retarded the others, always perish as the plants get ripe.

Their next great object should be to secure a *good inspection*; which they will ever find to be the fullest, as it is the fairest. To this end let there be five or more breaks made in every hogshead by the inspector, and ten bundles be withdrawn to make two sealed samples, one for the planter, and the other to be placed for public view in a suitable, central repository, where such samples should be brought from each city warehouse, by the Inspectors, and kept until the hogsheads were exported: let the inspectors be made independent, not only of the shipper, but also of the planter and dealer, by no longer appointing them to particular warehouses, but require them to change their districts every week, or daily, as our flour and whiskey Inspectors do. Warehouse keepers might be appointed to receive, display, preserve and deliver the Tobacco, and furnish the Notes for the countersign of the Inspectors.

Under such arrangements Tobacco could be brought into market to the best advantage for all parties; frauds could not be successfully practised upon those who would exercise common prudence; and imputations could rest but upon the guilty.

The following project of a law is the basis of several of our suggestions; it was some time since submitted to the consideration of the legislators of Maryland, by a senator from this city, then an exporting merchant—and we are satisfied that it was intended to establish check: on all, and safe-guards for each. And as such we recommend it to the favorable and attentive consideration of our Agricultural and Commercial friends for revival and improvement, as far as it may be thought susceptible of it.

EDIT. AM. FARMER.

AN ACT

Relative to the Inspection of Tobacco in the City of Baltimore.

Be it enacted by the General Assembly of Maryland, That on or before the first day of March next, the proprietor or proprietors of each of the Tobacco inspection Houses in the city of

Baltimore, shall under the penalty of five hundred dollars for neglect therein, provide a suitable room in the same for depositing samples of tobacco; and in each such room shall be boxes or other convenient places for containing such samples, which shall be so disposed, that samples may at any time be readily found.

Sec. 2. *And be it enacted, That on and after the first day of March next, each inspector of tobacco in said city, shall under the penalty of thirty dollars per hogshead, for neglect therein draw two fair samples from each hogshead of tobacco, which he shall inspect as near the average quality of the tobacco in the hogshead, as in his judgment they can be; one of which he shall deliver to the owner or agent of the owner of the tobacco, and the other, which shall consist of four bundles, shall be deposited in said, box, or places in such manner as that it can at any time be immediately found: but before he deposits the same he shall affix thereto a paper and secure the same with a string or cord, which shall be sealed with wax, and on such paper he shall mark the number corresponding to the number of the hogshead of tobacco of which it is a sample; and it shall be the duty of such inspector at any time to shew to any person requiring the same, any sample so marked and deposited, such persons paying him two cents for showing each such sample; and said sample shall remain there until the hogshead of tobacco be removed from the warehouse; and no tobacco shall at any time be in said sample room but the samples aforesaid of such hogsheads of tobacco, as shall be at the time in the warehouse. And each such inspector of said warehouses, shall on the first day of March next, and every inspector hereafter appointed, shall when appointed, take before a justice of the peace of the city of Baltimore, the following oath or affirmation: "I, A. B. do swear or affirm, that I will always, in drawing samples as directed by the act entitled, "an act relative to the inspection of tobacco in the city of Baltimore," draw such samples as in my judgment will be just, and of the average quality of the tobacco in the hogshead, of which they will be taken as samples, without favor or partiality.*

And be it enacted, That it shall be the duty of the Mayor of the city of Baltimore, on the first Monday of every January, May and September, and oftener if he shall deem it necessary, to call at each tobacco inspection house in said city, and the inspector of each warehouse shall lay before him a list of the tobacco in such warehouse arranged in numerical order; and the Mayor shall for every hundred hogsheads then contained in such warehouse, choose by lot one or more hogsheads, and the inspector shall deliver to the Mayor the samples of such hogsheads, and shall open the casks of tobacco for inspection; and said Mayor shall compare the sample with the tobacco, which it shall represent, and said inspection and comparison shall be done in an open place and public manner, in the presence of all persons who shall be disposed to attend.

And be it enacted, That each hogshead of tobacco, which shall be inspected at said warehouses, shall be broken for inspection at not less than four places.

[FROM THE LONDON FARMER'S JOURNAL.]

First Annual Exhibition of the Board of Agriculture.

In pursuance of advertisements for giving premiums for Breeding Stock, a show took place in Mr. Aldridge's yard, Upper St. Martin's-lane, on Monday and Tuesday last, the 9th and 10th instant. Among the company present, we noticed the Duke of Norfolk, the Marquis of Tavistock, the Earl of Macclesfield, the Earl of Egremont, the Earl of Galloway, the Earl of Thanet, the Earl of Mansfield, the Earl of Winchelsea, Lord William Bentick, Lord Arundel, Sir Watkin Williams Wynne, Sir Charles Morgan, Sir Thomas Dyke, Sir Isaac Coffin, the Hon. John Trevor, Colonel Way, Admiral Harvey, William Notley, Esq. Shafton Adair, Esq. Inigo Thomas, Esq. Charles C. Western, Esq. John C. Curwen, Esq. William P. Honeywood, Esq. Christopher T. Towers, Esq. R. Price, Esq. James Pickford, Esq. Edward Blount, Esq. Messrs. Ellman, sen. and jun. together with a long list of distinguished practical Breeders of Farming Stock and Agriculturists.

Considering that the institution of this exhibition is in its infancy, there was a very respectable show of Stock, consisting of ten Bulls of different ages; nine Cows and heifers; several fat Steers and Cows; seven pens of Leicester and Cotswold Rams and Ewes; twelve pens of ditto Downs; and nine or ten pens of ditto Merinos. As a curiosity, there was an imported Ram, from the South of Italy, (we believe) which is not likely to be used as an improvement to our crosses; it had monstrous long horns, with a narrow back, flat shaggy sides, the wool somewhat resembling the coat of a Polar Bear.

The Bulls unfortunately, were all short horns, excepting one, which was an Alderney, the property of Lady Ongley. Of course the competition for the premiums was very much narrowed, it being the intention of the Board to award a premium to each Bull, being the best of his sort. Some very good Cows were exhibited, and several weaning Calves with their dams in milk. The Noble President, Earl Macclesfield, showed two fat Devon Cows, dam and daughter, as extra stock which were greatly admired for their symmetry and condition.

The show of Stallion Horses was a very short one, there being but two exhibited—one of them was the property of C. C. Western, Esq. he appeared to be of a hardy race, but inferior in size, and not calculated to be of any service to English Stock.

The show of Swine was the most interesting of its kind, the specimens being numerous, and very good. The judges evinced their approbation of the competition in this department, by awarding many premiums among them. Considering how difficult it is to specify the *breeds* contemplated by the premiums offered, and the much greater tendency to crosses and intermixture of qualities, the judges are necessarily entrusted with a discretion to extend premiums to individual merit. Perhaps this, in future, may be simplified by offering premiums to Pigs of different ages. This might also be the case with regard to Bulls of the same breed or breeds.

Mr. Gibbs, seedsman to the Board, attended in the yard with samples of a great variety of Grass-seeds; together with the seeds of Mangel Wurtzel, (Cow-beet) Swedish Turnips, and many varieties of White, Red, and Yellow Turnips, &c. &c. with specimens of the roots.—Messrs. Lees and Co. shewed a very ingenious Drill for sowing Pease, Beans, and Turnips, on flat work, at eighteen inch intervals; also one of General Beaton's Scarifiers, and a Turnip-cutter. Mr. Wedlake showed his Ploughs, and a portable Chaff-cutter. Mr. Plenty attended with a Plough; and Mr. Fisher attended with his wet-and-dry-weather Plough.

Mr. Large, of Broadwell, Oxon, exhibited a carcase of mutton, immensely fat, weighing 60 pounds per quarter; it was remarkably wide, and thick on the back. C. T. Tower, Esq. sent with his excellent show of Pigs, a Carcase of his Essex breed, crossed with the Neapolitan Boar, for the purpose of showing that their dark lead colour alive, is not imparted even to the skin when slaughtered; the skin of this pig, being dressed with a scald, was as white as that of ordinary swine hogs. Mr. Tower exhibited a Sow of this cross, which had bred three farrows in the year, but now fat, together with specimens of her progeny; the oldest were three bacon hogs, the carcase just mentioned being one, and the other two alive; they weighed from 40 to 45 stones; the largest being 4 feet 2 inches long, and 6 feet 4 inches girth.

SHOW.

In arranging an exhibition, novel to the Board, and especially so to their responsible officers, it might be expected that some minutæ of detail would be omitted; in consequence there were no labels affixed to the pens of Sheep and Swine, &c. excepting only those which denoted the awards of the premiums, we can therefore only give a list of these, and leave the others with our general approbation of the merits of the Stock shown, but without detailing the scanty information which we were able to collect from personal inquiry, and which would be liable to mistake, or give offence by unintentional omission.

BULLS.—PREMIUMS.

To W. B. Thomas, Esq. for his Short-horned Bull, called *Charles the Second*, of the Improved Durham Breed, 30*l*. This bull was immensely fat, and very large, weighed 1 ton 2½ cwt.

To Lady Ongley, for her Alderney do. 30*l*.—No competition.

The judges also recommend that an honorary premium of 30*l*. be given to John Hutchinson, Esq. of Stockton, for his one year and four months old Bull, called *Sir Leoline*.

COWS AND HEIFERS.

To John Wetherell, Esq. for his incalved Durham Cow, 20*l*.

To Rich. Griffin, Esq. for his fat Long-horned Cow, 20*l*.

FAT STEERS.

To Sir John S. Sebright, for his fat Durham Steer, 50*l*.

To Mr. John Walker, of Westington, near Bromyard, a Hereford do. 20*l*.

To Mr. Willan, a Short-horned do. 15*l*.

STALLION HORSES.

To Mr. Hazell for his Chesnut Draught Stallion, 30*l*.

SHEEP.—RAMS.

To Mr. Faulkner, for his 2 years old Long-wooled Ram, 15*l*.

To Sir Thos. Dyke, for his Smith-down Rams, 15*l*.

To John Fane, Esq. his Merino Ram, 15*l*.

EWES.

To J. H. Nichols, Esq. for his pen of fat Long-wooled Ewes, 10*l*.

To Mr. Stephen Grantham, for his pen of Short-wooled Ewes, 10*l*.

To Thos. Henry, Esq. for his pen of Merino Ewes, 10*l*.

PIGS.—BOARS.

To C. C. Western, Esq. C. T. Tower, Mr. Daniel Brown, William Hayward, Mr. A. H. Chambers, and Mr. Stephen Grantham; each 10*l*.

SOWS.

C. T. Tower, Esq. Mr. H. C. White, Mr. William Hayward, Henry Hayward, Mr. W. Warrol, and Mr. A. H. Chambers; each 10*l*.

THE DINNER.

On Tuesday at Five o'clock, a company of about fifty gentlemen sat down to dinner at the Freemason's Tavern, in Great Queen-street, the Right Hon. the Earl of Macclesfield (President) in the chair. After the cloth was drawn, the Noble Chairman gave, "The King."—"The Royal Family."—"Agriculture," in a bumper. The health of the President of the Board of Agriculture was then proposed, and drank with great applause. The Noble Chairman rose and returned thanks, expressing his ardent wishes for the prosperity of agriculture, and modestly lamenting his own deficiency of knowledge in its practical pursuits; but in his estimation of its value and importance, and his good wishes for its welfare, he yielded to none, and his utmost efforts to promote its success in every way, should not be wanting. The Noble Chairman then expressed his thanks to the Vice-Presidents, who had been appointed for the occasion, namely, the Rev. Gen. Jenyns, John Fane, Davies Gilbert, and Charles Duncombe, Esqrs. and gave their healths. The Reverend Geo. Jenyns apologized for the absence of Mr. Fane, and Mr. Duncombe, and returned thanks for the honor done them. He said a few words relating to the distresses of agriculturists, and hoped that patience and perseverance would restore the comfort and prosperity of all classes.

The Noble Chairman next proposed the health of the late President of the Board of Agriculture, "The Earl of Hardwicke." His Lordship observed with sincere regret, that ill health was the cause of the Noble Earl's absence, whose character he (the Noble Chairman) very justly eulogized as an enlightened and zealous promoter of agricultural improvements. The toast was drank with great applause.

The Noble Chairman then rose, and addressed the company in a few words, on the object of their meeting, and the good consequences that might be expected from the patronage thus

extended to breeding stock; adding, that a very agreeable part of his duty was now to be performed, namely, the distribution of the premiums which had been awarded by the judges on this occasion. Mr. Samuel Hennel having placed several trays on a centre table, covered with articles of silver plate, his Lordship concluded with requesting Mr. George Webb Hall, (the Secretary) to read the adjudications, which, in substance, have been noticed already. The noble chairman, then, with much kindness, and affability, addressed the several successful candidates, and handed to them, personally, pieces of plate, according to their respective premiums.

During this agreeable ceremony, the unanimity of the company was for a moment interrupted by a circumstance which requires some retrospective explanation. It appeared to have been the general expectation that the show was exclusively for the encouragement of *breeding stock*—and upon entering the Yard on Tuesday morning, the exhibitors found that premiums had been awarded in several instances, to fat stock in preference, which they conceived to be a deviation from the original principle, and the occasion of disappointment, numerically, to four candidates exhibiting Bulls and Cows. The second point of complaint was, that only *one* premium had been awarded for the long-wooled, and one for the short-wooled Rams, instead of adding others in each sort for the second and third in merit; which successive premiums, giving more chances for honorary distinction, had induced some to show who did not expect to be first. The remaining matter of disappointment was founded on the expectation that six premiums were to be awarded for Bulls—and these deviations, as they were conceived to be, from the rules and regulations published, were supposed to be left to the discretion of the Judges, or to have been introduced by them in the absence of full and specific directions for their award as to the objects intended. However this might be, the disappointment of the exhibitors produced an arrangement to hand a memorial or protest to the Noble Chairman during the business of the evening, explanatory of the impression under which their stock had been brought forward, and the disappointment that was produced.

The business of the memorial was introduced by Mr. Dickinson (who was not, however, one of the memorialists,) who rose and begged permission to make a few observations on the regulations of the exhibition; this being done, the memorial was handed to the Noble Chairman, and read by the secretary; it stated in substance, what we have sketched above.

Mr. Tower rose during the reading, in order to put a stop to so unusual a course of proceeding; but the Noble Chairman directed that the business should now be fully heard, intimating, however, that if he had fully understood the nature of the document, he should have felt it his duty to have suppressed it. The reading being finished accordingly, Mr. Tower rose again, and strongly deprecated the proceeding; observing, that such a course was not only disrespectful, but wholly unprecedented in any society of that kind. He spoke to the several points of complaint, and observed, that it was

manifestly impossible to embrace and harmonize all opinions in the awards given; that judges might be in some points mistaken; but that acting with the best intentions, and with unimpeached integrity, their award must be ever held sacred, without which, no societies of that sort could exist, nor would any gentleman be found to exercise so unthankful an office. Respecting the Bulls, Mr. Tower observed, that it could not reasonably have been expected that six premiums should be distributed among animals of one breed; and as to any imputation on Rams exhibited, as not receiving premiums in succession, it was merely imaginary. Mr. Tower spoke at considerable length, and defended the Board of Agriculture and the Judges from all imputation of blame.

Mr. Curwen then rose to deliver his impression on the whole circumstance, both as he had observed it in the Show, and had heard it then argued. He observed, first, that it certainly could not be the intention to give six premiums to Bulls of one sort, and therefore, it appeared to him, that as there was no connexion in other breeds, the Judges had turned their attention to reward other points of merit, that is, in the steers; but here he must confess that he could see no reason why they should give premiums to all the Steers, any more than to all the Bulls; also, in the latter, he thought it an error to have awarded the premium to a Bull which was entirely too fat to serve. The premiums, however, in this were right in point of principle, for they were awarded to two Bulls of different breeds. The next complaint was of the same nature. Two premiums had been given to Cows, and one of them to a fat Cow, which was a long-horned animal; but all the rest were Durhams. It appeared to him that the Judges had been drawn away by a tendency to *fat* rather than due regard to symmetry, which latter was the sort of merit to be appreciated in breeding animals. He begged not to be understood as casting any stigma on the Judges, but as merely expressing his opinion on the points to be had in view, and as explaining his notion of the disappointment that had been expressed. He thought the paper went too far, but that probably a little more care in the rules and stipulations would wholly prevent any future misapprehension. On the whole, he trusted that the occurrence would not discompose the harmony of the company, and concluded by recommending to the gentlemen to withdraw the protest, and to spend the evening together with cordiality and friendship. Mr. Curwen's observations were heard with much deference and satisfaction, and had the effect of staying all further discussion.

The Noble Chairman rose, and with great suavity and politeness recommended the adoption of Mr. Curwen's concluding sentiment—observing that the paper ought not surely to have been produced there. The Judges had read and considered their instructions, and had decided according to the best of their judgment; to that decision they were all bound to submit. The Noble Chairman added, that if the rules had not been sufficiently explicit, he did not doubt but that with a little more care in future they might be rendered so. His Lordship's kind and conciliatory manner was

greeted with very great applause, and every ruffled feeling was subdued in a moment. His Lordship then gave, "The Judges of the Show, J. J. Nichols, F. Lawley, and W. Stickney, Esquires."

Mr. Nichols said a few words, in the absence of the other Judges, as to the awards: he admitted that they might have been led into an error in respect to the fat stock, and was disposed to pay the highest deference to the opinion of Mr. Curwen, whose liberal and candid view of the subject had so happily restored the harmony of the evening, concluding with returning thanks for the honor done him, and observing that the Judges had but one motive, and that was justice to every competitor.

The Noble Chairman then proceeded with the premiums, in delivering which, suitable remarks were made, and the successful candidates were encouraged with appropriate compliments. Mr. Thomas, on receiving his premium, returned thanks in a short speech to the Chair, in which he remarked, that in the course of his whole experience and observation, he found the short-horns were excellent in two points, and these two he believed to be of the greatest importance; namely, in the males, *early maturity*; and in the females, *deep milkers*; short-horned cows in milk, carried less meat than some others, but when put to feed they took on beef with great facility.

Mr. Walker, in receiving the premium for his Hereford Ox, returned his thanks to his Lordship, and pronounced his firm conviction that Herefords would *feed and milk* with any bred in the kingdom.

The Noble Chairman interspersed the business of delivering the premiums with toasts, as well to promote conviviality as to pay suitable respect to absent characters. The health of "Sir John Sebright" was given, and drank with great applause.

Having finished the delivery of the premiums, the Noble Chairman gave the health of "Lady Ongley, and the other successful candidates."

Mr. Tower begged to propose the healths of two distinguished friends of agriculture, to whom the country was very much indebted, and he himself particularly bound in gratitude for his share of the honor obtained in that exhibition. The fact was, that the whole merit which he had been so happy as to claim in the pigs he had shown, was owing to Mr. Coke and Mr. Western; from the former he received the Neapolitan boar, and from the latter he had the Essex sow which had produced his stock. Mr. Tower concluded with proposing the health of "Mr. Coke and Mr. Western," which was drank with great applause.

Mr. Thompson begged permission to propose a toast; and in terms of appropriate thanks and expressions of suitable encomium and gratitude for his great exertions and unwearied perseverance, proposed the health of "Mr. George Webb Hall," which was received with the warm applause of all present. Mr. Hall returned thanks.

Mr. Nichols addressed the company shortly on the present depressed state of the cultivators, and very happily added to the foregoing toast, "The enlightened Tenantry of the King-

dom, and may they be remunerated for their exertions."

Mr. Tower rose to propose the health of Sir John Sinclair, which he prefaced with a speech of considerable length, observing, that Sir John might be considered the father of the Board of Agriculture, for it was to his exertions that its establishment was first owing; but he feared that while they were celebrating the birth, they must also ring the knell of that institution, as there was but too much reason to believe that the usual allowance for its support would not be continued. He had hoped on that occasion to see a considerable number of its noble and respectable members present, and that the society and its functions should not die, as it were, strangled for want of the animating stream of life which had hitherto run in its veins; that stream might be supplied from other sources, and as the Smithfield Society, as the Merino Society were upheld, so that might be supported independently of all reliance on the public purse. Mr. Tower spoke on this subject with considerable force and effect, and added many other observations which our want of room obliges us to omit.

Mr. Tower in his speech having mentioned something of the apparent contest which had long subsisted between the agriculturists and manufacturers, the Noble Chairman rose and adverted shortly to that subject, observing that the interests of both were very much mixed, and nearly the same; he thought that we might desecrate the dawnings of a more cordial spirit, and experience and reflection must bring on a clear conviction of their mutual dependence.—He therefore would propose this sentiment—"The Union of Agriculture and Manufacturers," which was greeted with lively applause.

The Noble Chairman then regretted that he could not have the pleasure of continuing longer with the company; but before he took his leave, he observed, that as to the future existence of the Board, he would give no opinion. "Without doubt (said his Lordship) there are calls for economy in all practical shapes; but, nevertheless, I do hope we shall have the pleasure of meeting again another year, and under auspicious circumstances." His Lordship then retired amidst the cheers of the company.

Mr. Tower being called to the Chair, his Lordship's health was a second time drank.—Many other toasts and sentiments were likewise drank, and the evening was concluded in harmony and good humor.

From the Southern Patriot, of Sept. 1st, 1820.

MR. EDITOR,

It is but seldom we have an article relative to Agriculture in our gazettes; and, if it should meet with your approbation, I believe it would gratify many of your readers, were you, *occasionally*, to devote a small corner of your useful paper to this subject. We continue to follow the *fashions* of Europeans, from the form of the hat to that of the shoe; and I wish I could add in the care and attention they devote to every thing connected with the cultivation of the *soil*. A principal cause of the perfection to which Agriculture has arrived in England, is, no doubt, that emulation which has been produced among farmers, by the distribu-

tion of premiums, offered by the numerous agricultural societies; and, the publication of the errors of one farmer, has enabled another to avoid the same. The knowledge of a few well conducted experiments, shewing the advantages to be derived from *deep ploughing*, the *enclosing system*, and a proper attention to *manuring*, would produce more practical benefit to the majority of farmers, than the publication of books on those subjects.

With the wish to contribute my mite, I add a few remarks upon the cultivation of oats, in the way they are generally managed in the low country, as far as my observations extend. Most planters, without breaking up the land, plant in trenches, from 12 to 18 inches apart, with the *hoe*, and then *leave them* without any cultivation after planting. For the last two years I have carefully ploughed and hoed my oats, and the crops have been more than twice as much as I formerly made without the after culture; and I may venture to assert, that two acres, well cultivated, will produce more than three acres, in common seasons; and in dry seasons, a greater proportion, as every farmer must be sensible of the effects of a good ploughing, or hoeing, to the crop in a time of *drought*. It has been justly remarked by a practical farmer, that a complete stirring of the earth between plants, is equal to a shower of rain.

The cultivation of oats produces a heavier grain, and the straw is more valuable from not *firing* as soon, as when left without the after culture. The field, as a pasture alone, would, by the increase in the growth, of Crab Grass and Crow Foot, more than compensate for the work bestowed upon the Oats. I prefer breaking up the land *well* in *November*, and planting the first week in January, in *drills* made with the plough, in light lands at two feet asunder, at the rate of one bushel per acre, giving two ploughings, and when the oats are *fully in ears*, a good hoeing of the alleys; and drawing off the earth among the roots.

A COTTON PLANTER.

THE BENE SEED

YIELDS A GOOD SWEET OIL, AND IS AN EXCELLENT FOOD.

Extract of a letter from General Calvin Jones, to the Editor.

RALEIGH, June 27, 1821.

Dear Sir,—I duly received the Bene Seed you so obligingly sent me, and for which you have my thanks. The plant has long been cultivated by the negroes, in the eastern part of this state, and the seed is used by them as food. Mixed in due proportion with their hominy, it heightens its relish, and adds to its nutriment—and among negroes who get little flesh meat, it is a valuable article. I have been acquainted with it fifteen years or more, and was always told by the planters, that it was originally brought to this country from Africa, by the negroes. Several years ago, I took some pains to extend its cultivation, and to procure the extraction of the oil; and had several communications on the subject with John F. Smith, esq. of Newbern, and James Mebane, esq. of Orange, two very public spirited citizens, who

had manufactories of linseed and castor oil. They made considerable quantities of Bene Oil. The hon. William Gaston told me, in conversation, that he was particularly fond of the oil with salad, and with fish; that Mr. Smith had presented him with a flask of Bene Oil, of his own manufacture—and that it was, for any table purpose, superior to any he had ever before used. Mr. Thomas Emond, a very respectable clock and watch maker of this city, told me, that he had used it in oiling his time-pieces, and found it excellent; and, in a peculiar manner preserving its fluidity in cold weather—a quality of great value in its application to machinery of delicacy, and requiring uniformity of movement. I could add much other testimony in favour of the oil, but I give names that are known, and persons who are qualified to judge.

I am much, and very respectfully, your's,

CALVIN JONES.

John S. Skinner, Esq.

TO THE EDITOR.

Sir—I ask the favour of you to preserve in the American Farmer, the following

MEMORIAL

OF A

CONVENTION OF DELEGATES

Representing the Merchants and others interested in Commerce, Assembled at Philadelphia,

TO THE CONGRESS OF THE UNITED STATES.

Although much has already been addressed to your Honourable Body on the subject of the new tariff; yet, unless it could be said to be entirely exhausted, its pre-eminent importance may well claim still further attention from all who are interested, and may be allowed to constitute a valid excuse for those who venture once more to appear before you in the character of petitioners against its adoption.

Among the great diversity of subjects which, from time to time, have occupied our national legislature, not one, it is believed, within the whole scope of their proceedings, has ever been agitated, which involves a greater variety of interests—fiscal, moral, and political; which strikes more deeply at the very foundation of all true and enlightened policy; and which according as it shall be ultimately settled, will be productive of more lasting, more beneficial, or more pernicious consequences. In short, this nation, through its highest public functionaries, is called upon to determine, whether we will plunge still deeper into all those measures of prohibitions and restrictions upon trade, of duties, premiums, and bounties; of stimulants to rear exclusive interests at the national expense; which have contributed more than any other causes to bring the greatest commercial and manufacturing empire that the world ever saw, to the very verge of destruction;—or by taking warning in time and pursuing a different course, achieve for ourselves a far higher degree of national prosperity, than any people, of whom there is any record, have ever before attained. Let it not be said that we are too much inclined to magnify beyond their just dimensions the various objects involved in this enquiry;—still less let it be said, that the injuries or benefits which must necessarily result from the adoption, or the rejection of the proposed tariff, will not be fully equal in process of time, to any thing which we have ventured to imagine. If the observation of Dr. Smith has been thought just, that heavy taxes upon necessities become “a curse equal to the barrenness of the soil, and the inclemency of the heavens;” let it not be thought extravagant in us to assert, that the additional duties required of you, operating continually, upon almost all the purchases of every member in the community, although a small and insignificant

sum, comparatively speaking, in each individual purchase, would amount in a few years to a sufficient number of millions, almost entirely to alter the existing relations of society, by forcing capital out of those channels in which it is naturally inclined to flow, and alluring it into others, where, but for this legislative process, it never perhaps would have gone. Can this be consonant either to policy or justice? Can such a power be found either in the constitutions or codes of any free government upon earth, as would authorise the legislature of such government to say to any of the great classes into which society naturally divides itself;—“thou shalt thou go and no farther” in thy fair and honest endeavours to better thy condition. And yet, in what does such a power differ in effect, from that, by the operation of which, any one of these classes may be fostered, cherished, and elevated at the expense of the rest, until the others who are forced into this most unnatural state, are so ground down, as to be compelled to abandon the trade, profession, or calling of their choice? Once admit that Congress may use the power of taxing imports ad libitum, for any other purpose but that of revenue, and you give them in reality, the power to say to the citizens of these United States, you must devote yourselves to agriculture, commerce, or manufactures,—not as you may happen to be inclined, but according to our sovereign will and pleasure. Let it never be forgotten, that the question now about to be determined, is not so much, *what may be beneficial to manufactures*, as whether Government has a right to benefit *these*, to the manifest injury both of the agricultural and commercial classes? whether the constitutional provision against taxing exports can be rendered in a great measure nugatory, by diminishing at pleasure the value of our exportable commodities, through the instrumentality of a tax upon imports? And finally, whether the direction and employment of individual capital are matters to be regulated and controlled by individual choice, or by the will of the national legislature?

If it be asked, who are the rightful judges in regard to the expediency and justice of the proposed tariff, it is surely fair to answer, that the *payors*, who constitute a very large majority of the whole nation, are certainly more competent to decide, than the expectant *receivers*, when the only inquiry is, how much of the money of the former shall be paid to the latter, and to what extent it shall be taken, not only without their consent, but in opposition both to their entreaties and remonstrances. This is the plain, unvarnished state of the case; and let sophists and casuists disguise it as they may; still whenever it is contemplated, unadorned by the embellishments of geographical parties, and divested of the exaggerations of exclusive interests, it will be seen, as a case, where, on the one hand, a certain portion *only* of manufacturers, (for very many of them are opposed to it) are importuning the government to compel all the commercial and agricultural classes to buy their manufactures, at enhanced prices, or to go without, whilst, on the other hand the sons of commerce and agriculture, almost to a man, are begging that they may not be exposed to any such exaction. It is not a boom or treasure, already in possession of the government, for that would be a mere contest of cupidity, wherein both would be alike selfish and culpable; but it is a plain undisguised effort on the part of certain manufacturers, either to coax or alarm our rulers into the ruinous project of coercing the farmers, planters, artisans and merchants into giving a much larger portion of their substance, than they at present do, to these manufacturers; whilst on the part of agriculture and commerce it is an arduous struggle to hold fast only, what is already theirs, and not to be forced to part with it contrary to their inclinations. Are we, therefore, enemies to the manufacturers? Are we consequently (as has often been said) selfish, unnatural, anti social, grovelling and ignorant; alike deaf to the voice of humanity, and to the calls of patriotism? God forbid. But if we have incurred these degrading censures, simply for praying that your honourable body will not put in the power of the manufacturers to make us pay higher for all which we

must necessarily purchase of them than we do at present, we must still submit to be denounced.

But, lest the mere pecuniary loss in our purchases alone, which we should incur from the proposed addition to the duties upon foreign commodities, should be considered the principal cause of our solicitude, we beg leave to suggest a few other considerations of far deeper interest, and of still more comprehensive character, that appear to forbid the adoption of the proposed measure.

If it be a fixed principle that we are to rely for our revenue chiefly upon a system of duties upon imports, can any thing be more obviously necessary and proper than that such a system should be both uniform and permanent? Can a single instance be cited from the annals of any nation upon earth where an augmentation of duties already high, has been found also to augment the national income? On the contrary, are there not many to be found, wherein a diminution of duty has been immediately followed by an increase of revenue? We beg leave to quote only a few; and we will take them from the history of that country whose commercial regulations and restrictions some of our political economists have so earnestly importuned you to imitate.

Previous to 1744 the East India Company's sales of teas amounted to no more than about 600,000 pounds weight annually, producing a revenue of about 140,000*l*. In the early part of 1745, an act was passed by which the tea duties were greatly reduced, and in 1746, the sales amounted to nearly two millions of pounds weight, and the revenue to 238,000*l*. But this unanswerable demonstration of the superior advantages resulting to the revenue itself from low duties, was unable to restrain the rapacity of the treasury. In 1748 the duties were again increased; and fluctuated between that epoch and 1784 from 64 to 119 per cent. In the last mentioned year, however, the government having in vain tried every other means to prevent the smuggling and adulteration of tea, reduced the duty from 119 to 12½ per cent; and the revenue, instead of falling off in the proportion of one to ten, owing to the increased consumption, only declined in the proportion of one to three. In 1787 the duty on wine and spirits was lowered to 50 per cent, but the revenue notwithstanding was considerably augmented. The average annual produce of the tax on coffee, for the three years previous to 1808, amounted to 166,000*l*. In the course of that year the duty was reduced from two shillings to seven pence the hundred weight, and the average annual produce of the reduced duty for the next three years, instead of being diminished, rose to 195,000*l*.

These few remarkable facts serve inconceivably to prove, more than whole libraries of theoretical reasoning could do, that the financier who calculates upon raising revenue by duties upon imports must unavoidably be content to make them moderate, or to lose his object. They also force upon our minds this important question,—whether the deficit which occurred in our revenue last year, and the still greater one which threatens us for the present year, are not both attributable, at least in part, to the very high rates of many of our existing duties?

If the design of the proposed tariff be to force into being certain manufactures which had no previous existence here, or to foster, at the national expense, such as have been found, after sufficient trial, incapable of being otherwise supported, the hope of revenue from this source must be abandoned; for it is a physical impossibility that the two projects can be consummated together. If manufactures are to be forced, the treasury coffers must remain empty, for any thing that the tariff can bring into them. On the contrary, if the duty on imports is to augment the revenue, the manufacturing interest must be content to rely upon her own energies, without calling on government to make crutches for her of both agriculture and commerce, to support that body, which, in the mania of speculation, has been dieted and swelled into an unnatural growth, too unwieldy for her own natural limbs to sustain.

Let us take another view of the subject.—If it has

become a settled point in our policy, that no justifiable means are to be neglected to render this nation a great naval power, as essential to the Union, as protective of the great and only outlet for all the agricultural products of the immense regions of the west; it is well worthy of inquiry whether it possibly can be effected by multiplying discouragements to foreign commerce. Can our hardy, magnanimous, and dauntless seamen, whose pursuits have heretofore exposed them to the perils of every ocean, to the vicissitudes of every climate, and inured them to that constant regimen and discipline so well calculated to fit them for all the purposes of nautical life,—can such men, with any advantage to our rising navy, be converted into a set of skulking profligate smugglers, or of sailors confined solely to the coasting trade? Yet, that such must be the inevitable result of either destroying, or much further injuring our foreign commerce, is a consummation which appears to us as unavoidable, as that death must follow the destruction of all our vital functions. Commerce is to the body politic what the circulation of the blood is to the body natural. To check either materially is to produce disease; and to augment such check in any great degree is to destroy the healthful existence of both.

Again,—Is it possible that we shall add much either to the moral or physical power of this nation by interposing legislative aids to accelerate the natural increase of that class of citizens who, from the very nature of most of their occupations, must necessarily be brought up in a way which, to say the least of it, is surely not the most favourable either to health, to morals, to bodily, or intellectual vigour? Can it be within the scope of any rational anticipation, that our manufacturers, one and all, can ever be made successful competitors to those of Sheffield, Birmingham, Manchester, who, by means of the very system of which some of us are so exceedingly emulous, are forced to labour from fourteen to seventeen hours in the twenty-four, and to live almost exclusively on vegetable diet, in order to earn a miserable pittance of wages, scarcely sufficient to keep body and soul together? Can any the most sanguine projector, calculate on realizing any such successful rivalry, except at an expense of taxation, of national happiness, and legislative oppression, such as the citizens of the U. States will never willingly incur?

(To be continued.)

FOR THE AMERICAN FARMER.

TO KILL RATS

More useful than to drive them to one's neighbour.

DEAR SIR,

I have read a great deal about driving away rats from barns and houses, but I have often wondered to myself what good that could do? The time chosen for this purpose, is when the barn is empty and there is no longer any injury for them to do, or any inducement for them to stay, and of course they are willing to go where they can get better supplied with food—but is driving them away, any reduction of their number? If they leave one barn will they not go to another, and return with augmented numbers when a new stock of food is laid in for them? The man who drives away a rat, although he may for a time, relieve himself from an inconvenience, it is at the expense of his neighbour; and whether he does it with "hound's tongue," or "Sailor," he renders no permanent benefit; but he who kills a rat, deserves as well of his country, and better too, than "he who makes two blades of grass grow where only one grew before;" and the reason is obvious, as in the one case a benefit is rendered to the community, whereas in the other, it is confined mostly to himself.

Now, sir, I have a plan for killing rats; it is

one which has long been a secret in our family, and was brought from France by my great grand uncle Nehemiah Simple, Esq. and was called there, *la Capuchin*, which, he being a great French scholar, translated "*Cap-push-in*," a term very descriptive of the manner, which is nothing more than to make them push their heads into a cap, which completely blind-folds them while you kill them. This was done as follows: he selected a room in a house, or a part of the barn, out of which he took every thing, in order that the rats might have fair play, then sprinkled some Indian meal, or flour on the floor, locked the door, and suffered no one to enter the apartment—this he did every three or four days for about a fortnight, by which time this place became the general rendezvous of all the rats in the neighbourhood, and it was quite amusing to hear them dancing their rigadoons and country dances about the floor; to be sure they seemed to be in high glee—but all at once, he stopped their supply of provisions which seemed to stop their sport; and from "*chassez*," and "*ballancez*," they got to fisticuffs about the crumbs. When he discovered that they had consumed all their supply, the next thing was to pay them off all old scores. He takes a number of pieces of paper, or parchment, about three inches square, and rolls them into the shape of a cap, or funnel, in the form of the paper in which grocers put samples of tea and sugar, and each of these he stitches so as to preserve the shape—in the bottom of each he squeezes in a crumb of soft cheese, a little suet, or butter, and around the edges, on the inside, he puts a little tar, or bird-lime; and when all are prepared, he strews them all about the floor of their favourite haunt. Next morning, he arms himself with a stick, and marches into the room, and behold! there are my gentlemen, every one hood winked in his night cap—each one wanting the sweet morsel at the bottom of the cap, thrust in their heads; the tar, or bird-lime stuck to their ears, and how to get it off they did not know—they were also equally at a loss how to find their holes to retreat to; and my uncle had nothing to do but kill them at his leisure.

What my uncle did, any other man may do.

So sir, I am your friend and humble servant till death.

JEREMIAH SIMPLE.

P. S.—I have a great many other things which I want to inform you of, but have to attend to my harvest.

Hay Making Machine.

This great labour-saving machine has been repeatedly in operation upon my farm within the last fortnight, and surpasses all expectation. Its performance was witnessed by a number of particular farmers, among whom were Mr. Joseph Merryman, Mr. Lewis Foulk, &c. who gave it as their opinion, that it would make hay as fast, as from 15 to 20 men could cut it. The machine is drawn by one horse, and may be tended by a boy of twelve years. It is very strong, and not liable to get out of order. In England they are let out by the day, at three dollars, with a man or boy to tend them, with-

out a horse, which is furnished by the person hiring it. These machines will be sold at cost, say \$110.

E. S. THOMAS,
57, South Street.

THE FARMER.

BALTIMORE, FRIDAY, AUGUST 3, 1821.

IMPROVED BREEDS OF CATTLE.

The value of such cattle increases daily in England—so writes Mr. Curwen to a friend at Washington: he states, that a bull calf was sold at public sale for 160 guineas—the dam for 175—and a bull for 360 guineas.

And we are happy to state, that the attention of Farmers in this country is daily more and more turned to this interesting part of their pursuit. Orders from southern states are frequently sent to the editor for valuable Neat Cattle: constant enquiries are made as to prices; and we learn, with great pleasure, that some short horned, or Teeswater cattle are about to be imported into South Carolina, from England, this summer.

WASHINGTON'S LETTERS DESCRIPTIVE OF THE SEVERAL UNITED STATES IN THE YEAR 1796.

We have procured from Sir John Sinclair, a letter addressed to him by the first President of the United States, the illustrious Washington, descriptive of our lands, the habits, condition and prospects of our countrymen; given for the particular use of Sir John, in 1796, who then contemplated removing to this highly favoured country, for reasons which he gives us in a prefatory letter.

These letters we are about to publish accompanied by a fac simile of one from General Washington, which enclosed his letter descriptive of the several States; and we hope that our fellow citizens will very generally embrace this opportunity to possess themselves of a copy, for the gratification of rising generations, to whom this familiar view of the great founders of their country's liberties, will become more precious and endearing, as time consigns his compatriots to the tomb.

These letters will be printed in octavo form, on superior wove medium paper, in large type, and be neatly bound in extra boards. They will be embellished with a portrait of Washington to be executed in the first style; and also with a portrait of Sir John Sinclair, his much respected and highly useful correspondent; who intends with the money we pay to him for the right to these letters, to erect a beautiful monument in Scotland, to the memory of him who was "first in war, first in peace and first in the hearts of his countrymen." The design of the monument will be given, and the copy right to the volume be secured according to law—The price will be One Dollar the copy.

MADAM ON ROADS.

Our readers will find by the advertisement of Mr. Lucas, that the very valuable work published by Mr. John L. M'Adam, in London on the method of making, repairing and preserving Roads, has been republished in this city. The information given by that very intelligent and experienced civil engineer, will be found very interesting to general readers, and may be particularly useful to those most directly interested in the subject. We learn that this volume has been reprinted by the desire and at the risk of a gentleman, who has devoted much time and paid great personal attention to the construction and management of the principal Roads leading to this city. In this commendable act, he has added another to many former proofs of his sincere desire to advance the substantial interests of society. We recommend this work particularly to the notice of all Road Companies, whose directors should place it in the hands of their agents. Indeed every one who feels much

concern in such improvements, or has any great interest in road property should possess this volume.

Water Lime Stone—Maha and other varieties of Indian Corn.

We have lately received from his Excellency, Gov. Clinton, a specimen of the Water Lime Stone discovered in New York and used in making hydraulic mortar or cement. That distinguished advocate and promoter of Internal Improvements, observes to us in the letter which accompanied this specimen that he hopes its possession may lead to a similar discovery in this quarter. He further remarks that this argillo silicious or Hydraulic Lime Stone is burnt as the common lime stone, and then ground in a plaster mill; after which it can be made into a cement, and used by any person that could mix and use the common lime mortar; for it is made and employed in the same way. Particular care, however, should be taken to procure clean sand, as the hardness of the cement depends very much on this precaution where sand is used. One third sand or equal parts of lime and sand are generally used, but this lime will make a good cement without any sand. The mortar may be put under water, as soon as it sets, say in about 20 minutes. For work above water the mortar should be allowed to dry moderately. The chemical analysis of this stone is given as follows:

Carbonic acid	35.5 parts in 100
Lime	25.0
Alumina	16.5
Silex	16.5
Water	5.3
Oxide of Iron	2.2

For a confirmation of this analysis, and with a view to have the stone very generally seen we have submitted the subject and presented the specimen to Doctor De Butts, Professor of Chemistry in the University of Maryland from whom we hope to receive some useful observations on the formation of hydraulic mortar from several substances.

We also received from Gov. Clinton an ear of corn, that had been raised by our troops at Council Bluffs, last summer, the seed of which was obtained by them from the Maha Indians, and yielded with imperfect cultivation 102 bushels per acre. It was observed that this corn came to maturity in three months, resisted weeds, grass, and the effects of frost. Its grain was soft, and its flour uncommonly fine, and white. This ear, with some grains from about thirty beautiful specimens of as many varieties which we received from Mr. Peter Minor of Virginia, Mr. J. Middleton, of Carolina, Mr. C. Kirk of Delaware, Mr. R. Rose, of Pennsylvania, and Mr. J. Buel of New York, we planted for the purpose of obtaining a sufficiency of every kind to permit a fair trial of each to be made after they shall have been acclimated.

Some of them are growing very luxuriantly, whilst others disappoint the expectations which we had been led to form, from the results obtained and reported by persons living further to the north, yet we believe that even from such seed raised by us this year will give more favorable returns in the next. We shall pursue this subject on a small scale for several years in

the hope of procuring some varieties of superior quality suitable to our climate and soil; and we strongly advise farmers in other climates to pay what attention they can to the same object.—It has been more than once remarked to us by intelligent Southern Planters that the flint corn of the upper counties, becomes soft on the seaboard, and that the gourd seed corn of the lower counties grows constantly more flinty in the west. The effects of climate and soil no less than the different modes of cultivation are entitled to the fullest investigation and it may lead us to most valuable practical conclusions.

PRICES CURRENT.

Flour from the wagons, \$4 87½—Whiskey, 25 cents exclusive of bbl—Wheat, 100—Corn, 47—Hay, pr ton, \$15 a 16—Straw, do 8½ a 9—Cod fish, per quintal, wholesale, \$3, retail 3 50 a \$4—N. E. Beans per bu. \$1 12½—ditto Peas, 75 cents—Plaster in stone \$6 per ton—do, ground, \$1 35 per barrel, 33 cts. per bushel, \$8 per ton—New-Orleans sugar, \$9 to 12 50—Muscovado, do. \$9 a 12—American White Lead, \$12 50—Ground dn. 13 a 14—Lined Oil, 75 cents—Feathers, 40 a 45 cents—Shad, new, \$6—Herrings, \$2 a \$2 25, declining—Fine Salt, 55 cts. per b. Ground Alum do. 35 a 60—St Ubes, 60—Cadiz, 50 a 55—Turks-Island, 75—Live Cattle, \$5 a 5 50—Beef, 8 to 10 cts, Hams, 10 a 12 cents—Middlings, 10 cents—Butter, 25 cents—Peas 30 cents per bushel—Eggs, 12½ cents—Cheese 8 a 10 cents per pound—Tar \$1 30—Turpentine, 1 87½ a 2—Pitch 2½—Rosin, common, \$1½, bright do. \$3 per barrel—Varnish, 25 cents—Spirits Turpentine, 33 cents per gallon—Cotton, (good Upland) 14 a 15 cents; very dull—Rice 3 a 3½ cents—Ship and Flooring Plank, \$25 a 27—shingles, best 6½ a \$7, common, \$3 to 4½ per M.
Mayland Tobacco—Lower Patuxent, common, \$2 and 4 to \$3 and 5—good, \$3, 50 to 6—fine, \$6 and \$8 to \$13—wagon, do. \$3 and \$5 to \$3 and \$8—fine, red, \$11 to 12—yellow, \$17 to 20.
Actual Sales, 2 hds fine, one fired, from Benedict, \$13—2 hds fine, wagon, \$20.
Virginia Tobacco—no sales.

ROAD MAKING.

THIS DAY IS PUBLISHED BY
F. LUCAS, Jr.

No. 138 Market-st. price \$1 in extra boards,
Remarks on the system of.

ROAD MAKING;

With observations, deduced from practice and experience.

With a view to a revision of the existing laws and the introduction of improvements in the method of MAKING, REPAIRING, and PRESERVING ROADS; and defending the road funds from misapplication.

BY JOHN LOUDON M'ADAM.

Road Companies taking a number of copies will have them at a reduced price, so that they may be distributed where they will be most beneficial.

Printed every Friday at \$4 per annum, for JOHN S. SKINNER, Editor, by Joseph Robinson, at the N. W. corner of Market and Belvidere streets, Baltimore, where every description of Book and Job Printing is executed.—Orders from a distance for Printing and Binding, with proper directions, promptly attended to.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua i bona norint
"Agricolae." VIRG.

VOL. III.

BALTIMORE, FRIDAY, AUGUST 10, 1821.

NUM. 20.

AGRICULTURE.

To the Editor of the American Farmer.

REMARKS ON A CALF,

ALDERNEY CATTLE, &c.

Weight did not, we trust, determine the excellence of the Cattle exhibited at the Fair—their properties, points, and dispositions governed, we should hope, the opinions of the gentlemen, whose impartiality and good judgment were manifested by their awards.

The Alderney Calf is traced with certainty to the Island which gives his name—but the pedigree of his family has not been sufficiently shown, to remove our belief, that they possess blood which is not "Alderney." That fine farm stock may be shipped from the Islands in the British Channel—that well formed Norman Cattle, have been frequently so exported, is well known—that large calves may be sometimes had of various breeds of small cattle, from fashionable Devons to hardy Kyloes, no man acquainted with the subject will deny—that gold and meal, with skill and care, have produced a very fat and heavy calf called Alderney, can be no longer questioned, but that they have given points, which a Breeder requires, or a Grazier seeks, has not to our satisfaction been made apparent.

Your well informed correspondent states, "In the English books the Alderney Cattle are characterised, generally as rather too delicate to be propagated there with advantage, to any great extent." But, if they should acquire with us the size and form, (in which qualities they seem in England to be inferior to other breeds,) and preserve the richness of the milk, they will certainly prove a very valuable race. "That they evince this disposition to improve, will, I think, appear from the descendants of Mr. Creighton's importation"—and he adds, "the finest Cross of the Alderney with us as yet, is that with the Bakewell and Holland Cows, of the breed at Hampton."

"This we cannot doubt, as the finest Cattle found in England are mixed with Lincoln, Holstein and Norman blood.

But if the offspring of a fine race of animals, which for en years and more have had all the advantages of a fertile land, ample keep, great energy and unusual skill in every branch of a farmer's art, should show fine points with "the size and form" (for the want of which in England, "Alderney's are characterised") he would not, I trust, contend, that their good shape, temper, size, or hardy disposition, should be referred to the breed, which Cully describes "as too delicate and tender ever to be much attended to by British farmers"—which Lawrence condemns as "unthrifty, thin, small herd, irregularly, often very awkwardly shaped"

"ed"—which Dickson quotes, as fit but for nobility and the rich—which we have always found restive, and of savage temper—and which no writer or farmer, whom we have seen or of whom we have heard has proposed for the general purposes of his country. If any gentleman, or epicure would regale his palate without regard to cost, or delight his eye with the exquisite colour of his butter, or should "fancy" small Cows to be tied to stakes, in Cobbett's fashion, or fed with slop, and kitchen trash, in the manner of a distinguished Philadelphia farmer, let him have a Dairy of Brittany, or Alderney Cows, and an Aviary of Ortolans and Reed-birds—but if he really intend to promote the purposes of his country, by increasing the comforts of the most important, and numerous classes of the community, it might be well to regard the value of his dry Cows, the size of his bullocks, the gentleness of his Oxen and the balance of his farm accounts.

But we are told "the Alderney Cattle seem to be developing a peculiar fitness for this climate," although the English books have characterised them as too delicate for England. Is it that heat is less violent, change less frequent, our cold less severe; or is it that Maryland Meadows are more verdant, our supplies more abundant, our servants more faithful, or their masters more vigilant than those of England? That there may be some "peculiar fitness for our climate," in this peculiar family of Cattle, of which English writers, and English farmers, and ourselves had been ignorant, we should be disposed to believe, as this heavy, fat calf the produce of an imported Bull, and an imported Cow, has in the first generation, evinced this singular "disposition to improve." May it not be feared then, that the extreme susceptibility of his family will expose them to a retrograde movement, and the next generation to step back to the "unthrifty, thin, small, hard irregularly formed" savage legitimate Alderney race, which the English books have characterised as "of inferior size, and form too tender ever to be much attended to by farmers"—such as a scientific agriculturist of Philadelphia County exhibits in their utmost purity. It must be acknowledged that fashion may give celebrity to a race of calves, just as we have seen it give distinction to other animals—but after all, the estimation in which they are held by those, whose habits give them means of knowledge, whose necessities impose caution in their purchases is the fair criterion of intrinsic worth.

CURWEN.

PHILADELPHIA COUNTY, July 25th, 1821.

NOTE.—The last Farmer states that Lady O. took a prize of 30 guineas for her Bull Calf. The English Board, like the Maryland, and every other Agricultural Board, offer premiums

to improve the objects for which they are desired. Her Ladyship presented the best Alderney Calf, and took the prize, which was small for England. Is it therefore to be inferred, that a bad Calf is better than a good one, because had was the best—and must we at a distance believe that in Maryland an Ass is (thought better than a horse, or that Maryland Horses, are not better than Asses, because an Ass was honoured with a large Silver Cup at the late Fair? Dickson has said, and we have always thought, that Alderneys are "peculiarly fitted" to Ladies and Lords, but unhappily Alderneys appear to think that we are not fitted for them, since Mr. Haines' imported Alderney Bull killed a man at Wilkesbarre, and was shot. Captain Thompson's imported Bull, showed the same inclination, and was condemned to the yoke. Mr. G. Howard's imported Bull for the like disposition is shut up for life, and the "fat, heavy Calf," worthy of his race, broke from his fastening, and with confusion dispersed the ignoble Plebeians who were applauding his size. It was stated "the finest cross of the Alderney with us as yet is that at Hampton"—yet the experienced and liberal proprietor of that estate has paid ONE HUNDRED DOLLARS for the use of Bergami for one month, and two gentlemen who were Judges at the fair, have engaged him at ONE HUNDRED DOLLARS each for a month after.

We have subjoined some extracts from English authors, in regard to the different breeds which have attracted most attention in America.

"The Cattle of the Islands on the French Coast, are I believe, collectively known by the name of Alderney—these are a variety of, and smaller than the Norman, light red, &c. short, wild horned, deer necked, with a general resemblance to that animal—thin, hard and small boned, irregularly often very awkwardly shaped. They are among the best milkers in the world, as to quality, and in that respect, are either before, or immediately next to the Longhorns; but weight of butter for inches they are far superior to all."

"The celebrated Red Cattle of Devonshire, are thus described in the Annals of Agriculture, No. 172, by Lord Somerville, an exquisite judge, and a native of the County in which they are bred."

"Beginning with the shape of the Bull, the horn is found neither drooping too low, nor rising too high, not too thick or goary at the root, the eye clear, bright and prominent, forehead flat, indented and small, cheeks small, muzzle fine, the nose of a clear yellow, if possible, like the horn or mottled, &c.—generally speaking the Bulls relatively to Oxen are not of large size, and it should be observed, respecting size in general, that nature operating in food and

climate, is imperious, and will produce Oxen proportioned to those two circumstances in due course of time, whatever may have been originally the size of the Bulls and Cows.

The neatness of form, and energy, and vigour in labour, greatly, if not wholly in this breed, arose in breeding by heifers; and year old, and two year old Bulls.

I have already made (continues Mr. Lawrence) a copious extract from this admirable memoir, written so much *con amore* by the noble and patriotic West Countryman. In my own opinion, the purest Devons frequently run to too great length of leg, crooked behind, or sickle hammed, and of insufficient general substance. They are also, I think, more apt to be *in-kneed* than any other reputed race. These cattle have generally, for a century past, commanded the best price at Smithfield; but of late years, the buyers there have shrewdly remarked, that although blood and fine form are very pleasing to the eye of the gentleman breeder, yet substance and weight are, and ever must be the grand objects at market. The Devons are the *speediest working Oxen* in England, and will trot well in harness; in point of strength, they stand in the fourth or fifth class. As milkers, they are so far inferior to both the Long and Short-horns, namely, both in quantity and quality of milk, that they are certainly no objects for the regular dairy, however pleasing and convenient they may be in the private family way. "The Northern Short-horns, including the Teeswater, Lincoln and Holderness, or Yorkshire and Tweedside Short-horns—the extreme coarseness, and size of the Northern Short-horns, led to the introduction of Norman, or Alderney Bulls, at some period of the eighteenth century. This improvement commenced in Holderness, Yorkshire." Never was there a more fortunate cross. In no other country does exist so excellent a breed of Cattle, including all the useful properties, in one, perhaps the most important respect, great milking, they are superior and even without rivals. Their Beef is finer than that of the old Short horned breed, and they fatten much earlier and quicker, carrying still a vast depth of natural flesh, and tallowing within in the first degree. They have both speed, and strength enough for labour, and their shoulders, are well formed, and well poised for draught. Being beautifully variegated in colour, spotted, &c.—From their superior quality of milk, they rival the best Long-horns in the cheese and butter dairies; and for suckling, are unrivalled. It may be presumed, they are at least equal to the Herefords, in the stall, at all points—and there seems but one respect in which they are, in any considerable degree, inferior to any breed which can be named, which is fineness of flesh; in that particular it is obvious, they can never equal certain other breeds, without the entire overthrow of their Dutch basis, by a repetition of the Norman, or some similar cross, which would go to destroy the present superior breed."

[Lawrence on Cattle.

The Cattle bred in Durham, have for a great number of years been of the Short-horned kind—the best variety of which, having been

long found on both sides of the River Tees, have for a great many years been known by the appellation of the Teeswater Breed.

"An attempt to improve them, (which I suspect was more with regard to size, than any other quality) was made by Mr. Michael Dobson of the Isle, near Sedgfield, who brought a Bull out of Holland, that is said to have improved the breed."

"A few years after, some other adventurers brought home a complete livery animal, which did a great deal of mischief—but there were some intelligent breeders that steered clear of this evil—and from them the pure Teeswater breed has descended to the present time, in which were united the properties of feeding to great weights, and being great milkers."

"It has been already stated, that the Short-horned Cattle were great milkers—this cannot be said of the variety which has such an aptitude to fatten, for though they give a great quantity for some time after calving, they decline considerably afterwards—but the variety of great milkers is yet to be found wherever the Dairy is the chief object, and this variety is as carefully preserved, and pursued, as the Graziers do that of the fatting tribe. It is very common for Cows of this breed, in the beginning of summer, to give thirty quarts a day, and there are particular instances of more."

[Bailey's Survey of Durham.

"The Holderness or Short-horned Cattle which are remarkable for their large size, and abundant supply of milk, prevail universally throughout the East Riding. This breed appears to be similar to that of the North Western parts of Germany."

"Many Bulls have latterly been purchased and hired into the East Riding at high prices from the neighbourhood of Darlington, in the County of Durham, where a much superior breed of Short-horns are found, possessing all the perfections, and qualities which are wanting in the Holderness breed."

"The milk is also rich in quality as there are instances of 16 pounds of butter (18 ounces to the pound) being produced by one Cow for several weeks after calving." (18 lbs. American weight.)

[Strickland's Survey of the East Riding of Yorkshire.]

TO THE EDITOR.

Sir—I ask the favour of you to preserve in the American Farmer, the following

MEMORIAL OF A

CONVENTION OF DELEGATES

Representing the Merchants and others interested in Commerce, Assembled at Philadelphia,

TO THE CONGRESS OF THE UNITED STATES.

(Concluded from page 150, No. 19.)

In whatever way we view this subject, and we have endeavoured to bestow on it all the consideration which its great importance so justly merits, we cannot avoid anticipating from the success of the tariff project, irreparable injury, not only to agriculture and commerce, but to many of the mechanic trades immediately connected with, and dependent upon, these

two great sources of the wealth and physical power of this nation. Agriculture, already bereft of half her ability to pay taxes, by a combination of circumstances, among which our protecting duty system holds a prominent station, is now called upon to pay a still further tax of some ten, twenty, or thirty per centum upon almost all her necessary purchases, at a time too, when the existing duties have been more than doubled in value to those who receive the benefit of them, by the appreciation of money and the depreciation of domestic provisions of every kind; a depreciation, moreover, so continued and portentous, as to threaten to terminate even the culture of several of those products which heretofore have most contributed both to our emolument and to our comforts.—What is to be the consequence? Why a rapid and appalling retrogradation throughout the community, compelling us not only to relinquish most of those embellishments of civilized life, which polish and adorn the social structure, but also to bid adieu to all the fond hopes which solace the parent and animate the patriot in regard to the progress of education, the improvement of morals and the general diffusion of national happiness. Commerce, curtailed in all her branches by the same sinister combination of events, is required still further to furl her sails, or to spread them only to the breezes of our bays, our rivers, and our seaboard. Or, if not deterred by the numerous difficulties which present themselves to her customary pursuits, she still essays to spread her canvass over the bosom of those distant seas from navigating which she has heretofore hoped to derive a fair and honorable reward for her toils, she is told that a large portion of her now scanty profits must go to foster a new interest in our community, which it has been found upon trial cannot be gotten up without levying still heavier contributions both on agriculture and commerce. The numerous citizens too, whose reliance for comfortable support has hitherto been placed upon the prosperity of agricultural and commercial occupations, must now be transferred to some other less precarious dependence, or their present employments exchanged for hopeless inaction. And what is the inestimable boon held out to us, as a compensation for all these privations? Why, truly, an adequate home market for all our domestic products! That this idea is altogether fallacious, we trust can be made manifest by a very few remarks. The manufacturing establishments, which it is said will grow out of the tariff, are to be peopled from the population already within the country, or to be supplied by foreign importations. If in the first mode, then it is obvious, that unless we suppose the intended recruits can live in their present scattered condition, without food altogether, they will not, when embodied, consume so much more additional provision as to compensate for the great diminution of exports which the new tariff must necessarily occasion. It is only then by the importation of that class of foreigners, the least desirable part, in general, of foreign population, that the number of manufacturing consumers, and consequently the quantum of consumption, can be materially augmented. This is unquestionably true as to provisions. But it will be said, our raw mate-

rials will then find so much more extensive a market than they have at present, as amply to remunerate us for all additional costs. If it were true that we had no home market at all for our agricultural productions, it might become a question with some, whether it would not be worth while to incur a considerable national expense with a view to create one, provided it was probable that the domestic sale for our surplus produce would then be so much greater than the foreign sale extinguished by this creation, as to reimburse those at whose cost it was made for all additional expenses. But this happens not to be a fact. Your honorable body cannot be ignorant, that our home market for the produce of the soil, especially for cotton, is even now on the increase; that a large portion of our manufacturers claim no further protection, ask no additional duties; that the stockholders of one of the most considerable and flourishing manufactories in the United States, we mean that of Waltham in Massachusetts, at this time divide twelve per cent. on their capital; and that most others of any standing are known to be in a sufficiently flourishing condition to ask no aid from government. The question then is simply reduced to this. Shall we impose additional duties upon almost every article of foreign importation, either to gratify the sanguine expectations of those who wish to make trial of such manufactories as do not exist here at present, or to enable those who have failed, no matter from what cause, in manufacturing experiments already made in various parts of our country, to renew them at the expense of more than three-fourths of the nation? Relying, as we do, upon the wisdom and patriotism of our legislature, we cannot for a moment believe, that from the freest government upon earth we are to expect a system of policy so repugnant to every principle of reason and justice as would be that which your honorable body has been so importunately urged to adopt. And we confidently trust, that the men to whose intelligence and virtue the American people have entrusted the preservation of their dearest rights and interests, are as deeply impressed as any of their constituents themselves can possibly be, with the truth and importance of the following cardinal maxims in legislation.

That if the principles both of justice and policy forbid the majority of a nation to impose any tax on the minority alone, *a fortiori* they inhibit the imposition of any tax to be levied upon the former, for the sole benefit of the latter.

That where revenue is to be derived from imports on foreign commodities, universal experience has demonstrated that moderate duties contribute much more than high ones towards the attainment of this object.

That where such duties are imposed to foster the particular interests of any class, who pay no part thereof, those duties must necessarily come out of the pockets of all the other classes in the community, and are in direct violation of that fundamental maxim, "not to tax the many for the benefit of the few."

That the practice of frequently changing those revenue laws which operate as taxes upon agriculture and commerce have a much more

pernicious effect upon both, but especially on the last, than permanent taxes of the highest kind compatible with the permanent existence of those two great sources of national wealth and power.

That for government, by legislation to add to those casualties and uncertainties which naturally affect the profits of labour, is to infringe the natural right which every man has to pursue any trade, profession, or calling that he pleases; and is to administer oppression instead of justice.

That by the exercise of such a power, governments may not only force individual capital into any channel which they please, but may either create or suppress ad libitum any particular class among the various ones, into which communities are usually divided.

That the reciprocal wants of agriculture, commerce and manufactures, with their relative capacities of supply, are sure guarantees of mutual good will and friendly offices, when left to exert their respective energies in their own way—but that the interference of governments with their private concerns rarely fails to produce a jarring of interests, and consequent hostility both of feelings and conduct.

That the natural diversities of soils and climates, and the artificial varieties of manners, habits, and customs are far better regulators of supply and demand than the wisest legislatures can possibly contrive.

That a due proportion of heat, moisture, and the pabulum of plants will not more certainly produce a vigorous and healthful growth in the vegetable kingdom, than will the natural inclination of mankind to improve their condition produce it in the political world, if left to exert itself entirely free from all legislative restraints but such as peace, order, justice, and good morals require.

And that it may be laid down as a maxim admitting of no exception,—*THAT NATIONAL INDUSTRY IS INVIGORATED BY FREE TRADE, AND DEPRESSED BY EVERY THING OPPOSED TO IT.*

All which is most respectfully submitted.

WILLIAM BAYARD,

Chairman.

JOHN VAUGHAN, Secretary.
Philadelphia, November 4, 1820.

TO THE EDITOR OF THE AMERICAN FARMER.

FIRING TOBACCO.

Has it been successfully accomplished by STOVE HEAT?

CAMBRIDGE, July 27th, 1821.

SIR.—In addition to the very useful communications on the culture and management of Tobacco, contained in the American Farmer, and which have been read with much satisfaction, if any of your correspondents would report their experience of the efficacy of curing Tobacco by stove heat, and the method of performing it, it would be highly appreciated, and more especially so, if as promptly as possible.

Respectfully, &c.

JOSEPH E. MUSE.

SALT,

Used as a Manure on CORN.—Enquiry about RUTA BAGA sown in May.

MR. SKINNER,

Perhaps no experiment in agriculture, however small, if it be but authentic, is wholly undeserving notice—should you be of that opinion, you may insert in the "Farmer," an account of one that I have made this spring upon salt. In eight rows of early Corn, of equal length, same soil, and manured alike, I put a small quantity (not exceeding a tea spoon full) in each hill with the seed and at the time of planting, in one row—in another row I put the same quantity on the surface of the hill, at the same time. The result therefore, has been, that in the row first mentioned, none of the Corn made its appearance till a full week after that which had no salt—not half of it has come at all, and what has come, is very much stunted—that upon which the salt was strewed on the surface came up and grew somewhat better, but both the salted rows are much inferior to those which had no salt. I cannot but attribute this defective growth to the salt. The ground was highly manured, both by ploughing in and afterward in the hill.

I am aware that single experiments are by no means, and perhaps in no case, conclusive.—The celebrated English farmer, Mr. Coke is, it seems, so sensible of the errors to which insufficient experiments may give rise, that he considers none complete till confirmed by many repetitions, under different circumstances and seasons—this is what I purpose, upon a small scale, with regard to salt, since its use has been so often and urgently recommended, and I wish others may yet, this season, for which there is full time, be stimulated to do the same for publication.

I beg leave to avail myself of this opportunity to enquire the result, which I think was promised your subscribers, of the experiment made last year of sowing Ruta Baga in May, by the president of our agricultural society. As no one is more zealous for the good of the society, or more willing to communicate his agricultural experiments, it is presumed no apology for this request will be necessary.

"A LEARNER."

Anne Arundel County 25th May, 1821.

VALEDICTORY ADDRESS

Delivered by Thos. Pinckney, Jr. Esq. First President of the Pendleton Agricultural Society, So. Ca.

PENDELTON, June 12, 1817.

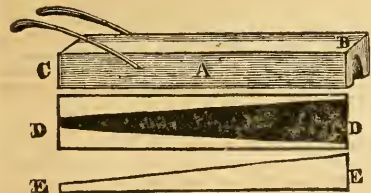
I offer you, my brother farmers, my best congratulations, on the return of this second anniversary of our Society, and I fervently hope that each succeeding year, may still find us in the path of public usefulness, and supported by the voice of public opinion. All reflecting men must applaud our motives, and I trust that the wisdom of our measures will equally merit their approbation.

It is a source of the most pure and heart-felt joy to me, that I am enabled to state to you, that we have already been useful. The first object to which the Society turned its attention, was the improvement of our wheat crops, and behold our fields are now loaded. I have been informed, that one third more wheat will be reaped this year, than was ever raised in this district. This is an inspiring fact, and should stimulate us to proceed with increased ardour, in our noble career.

The term for which I have been elected, having expired, permit me, before I retire from the chair, as my last official act, to implore your attention to an object, without which, there can be no good farming; an object that will double our comforts, and quadruple the value of our lands; that will enable us to raise four fat oxen, where we now barely sustain one; and in short will raise us to the rank of real farmers, rioting in abundance, instead of being mere labourers, struggling for subsistence. This important object is meadow. And never, in my humble opinion, shall we truly prosper, until we admit hay fields, as a regular rotation among our grain crops. Sow clover seed on your wheat before the frost is over, strew plaster on your young clover, and the experience of all farming countries will tell you, you have the secret of abundance, and improvement with the least labour. Give the clover a fair and impartial trial—and should this trial prove that our sun is too hot for its successful cultivation, we have native grasses that may supply its place, affording a finer, and I believe a better hay, though not so rich as a pabulum for our soil. I forbear to trespass on your time at this moment, to detail all its various advantages, your own judgment and your books will convince you, that the introduction of clover and plaster, has formed a new era in agriculture, it has resuscitated whole districts. Would that my powers of persuasion were equal to my zeal on this subject, and that I had the talents to tempt or persuade you to depart from the beaten tract, even for one small experiment. I deem this object so all important to us, that I will not risk dividing your attention by mentioning another subject. I hope and persuade myself that the views of the Society, will encourage individual attempts to introduce grass fields as a regular rotation, and the last words of your first president are, "gentlemen, make hay."

THOS. PINCKNEY, JR.

COTTON SEED COVERER. SCOTCH WINN.



Hermitage, near Wilmington, No. Ca. }
3d May, 1821. }

JOHN S. SKINNER, Esq.

DEAR SIR, In planting my Cotton, I have used an implement for covering the seed that answers a better purpose than the hoe, inasmuch as it covers it more regularly, and not as deep, and saves the work of six or eight hands. With one small double fluke to open the trenches on the bed, four planters, and one hand to follow the "Cotton Coverer," to cover the ends of the beds, and remove any seeds that may be left on the seed—I planted seventy acres in eight days. The "Cotton Coverer" is a piece of timber, A, about four feet long, twelve inches wide, B, and seven inches thick, C—the side D I intended to lay on the ground, is scooped, or hollowed out to the width of nine inches at the mouth, or part next the horse; gradually diminishing to three inches wide, at the other extremity—the cavity E E, is six inches deep at the fore end, and tapers down to one and a half inches behind—this "Coverer" is drawn by one horse on the top of the ridge, the hollow part of the timber being over the trench where the seed is planted, and wide at the mouth, collects the earth on both sides of the seed, and as it is drawn along, deposits the soil lightly over it, about three quarters of an inch thick. The "Coverer" has handles to it like a plough, and is guided with great facility. I have heard of one somewhat

similar to it in Wayne County, in this state, but am not aware of their being used or known generally among Cotton planters.

Can you procure me any information relative to the Fern, or Scotch Winn? Will it answer for hedges? and in what manner is it cultivated? I have some growing near five feet high? I think if well managed, it would make an impenetrable hedge.

In haste, but very respectfully,

Your's &c.

GEO. W. B. BURGWIN.

COTTON SEED

Sown Broad Cast, would furnish a good substitute for Clover, to improve old fields in Southern States.

FROM THE SOUTHERN PATRIOT.

"Inclosing for the sake of rearing vegetables to enrich the earth, is the mode by which the greatest quantity of atmospherical manure can be infused into it with the least labour."

[Taylor's Arator.]

Charleston, June 5th, 1821.

MR. EDITOR,

Whatever difference of opinion exists among agricultural writers, as respects the *food of plants*, it is agreed by all Farmers, that covering the surface of the earth from the injurious effects of the summer months, with some vegetable matter, and restoring to the same this substance previous to its cultivation, is one of the most beneficial modes of renewing its fertility. The author of Arator has so fully illustrated this branch of practical agriculture, that I am aware any observations I could offer would be deemed superfluous. In the Southern States, however, I much doubt if any of the kinds of clover can be advantageously employed in the mode so much extolled in the Northern States; and, from recent information, it appears, that strong fears are felt this may fail even there, from some deficiency in the clover, from causes not fully understood, which have induced their farmers to turn their attention to this subject. A writer from North Carolina, in the American Farmer, has recommended our common Cow Pea, to be sown broad cast, and in the fall, after frost, to be ploughed in deep. This plan, in part, has been often practised with success, upon lands intended for Wheat in our state; and if I am correctly informed, was used with considerable advantage, to ensure a good crop of Oats, by one of our members of Congress, (WM. LOWMEYER, Esq.) upon his farm near Charleston, some years ago. I have some objection to the use of the Pea, not however, from any idea of its not answering, but from the disposition we planters have of taking from the earth every thing it yields us in the shape of grain—and the writer alluded to, fully bears me out in this conclusion. He recommends a certain portion of the Peas, to be gathered, and I fear if the land produced a good crop of Peas, they would all be picked off, and some of the stock upon the plantation would consume the best part of the vines. I must further conclude, that the vegetable employed should not be suffered to produce its fruit, or remain till frost, as either of these states would lessen its value when restored to the earth, unless the whole be ploughed in, which I much doubt would often be the case if the Pea crop was a good one. From the result of a few trials with Cotton Seed, I am induced to recommend this plant as a mode of restoring fertility to our lands when in fallow, to be used in the following manner. From the first to the middle of July, break up the field with a Shovel Plough, and then sow the same broad cast with Cotton Seed, which has been prepared in the same way as if for planting, at the rate of 5 bushels of seed per acre—after this, harrow in the seed, or if time permits, I much prefer ploughing in the seed with a small plough. If the land be intended for winter grain, about the middle of Sept. turn in the Cotton deep, with a Shovel Plough, and the first week in October, track off the land with a plough at from 18 inches to 2 feet, for the grain, so that the crop may have the great benefit of the hoe and plough during its growth. I have found October the best month for planting our winter grain, except Barley,

unless this be intended for a pasture. If the land be for Cotton or Corn, let one furrow be run at the distance the beds are intended to be, with a sharp and long Tracking Plough, and then have the field well listed to remain in that state till the planting season. This listing will be much expedited, if several furrows are run with a Shovel Plough, between each of those intended as the foundation of the beds. The many advantages which are connected with the cultivation of old lands, fully justify the farmer in making every exertion to restore and keep up their fertility. The situation of the fields in the harvest of the crop—the diminished quantity of labour in their preparation, and in the culture of the crop, together with a greater certainty of a crop over new lands, which require so much labour to prepare them, are well worth the serious consideration of the planter—and hence we so often find our old fields continued in cultivation, till totally exhausted. The usual opinion among planters has been, that it is easier to clear a new field than manure an old one. If this was even correct, in many of our first settled districts, all the best lands have been cleared, and the old fields must be abandoned, or their fertility restored.

When we consider the time necessary to prepare, in a proper manner, our new lands for cultivation, if the enclosing system was resorted to, and in the fall before frost, some vegetable substance was restored to the earth, our lands would continue to yield well for a much longer period, and our corn fields would be much benefited by listing in the stalks, grass, &c. to rot during the winter, instead of remaining till spring, which is the usual practice. Much benefit might be expected to follow, from strewing over our fields the trash and decayed vegetable matter from our wood lands; and instead of clearing new lands, let the same time be employed in conveying the top soil from our woods to our old fields, as has been alluded to by Dr. BLACK, of Delaware, in the American Farmer. Upon our sea shores the salt marsh and mud is successfully used by our planters. In urging the advantages of the use of the clover to aid the enclosing system, it is observed that "the tap root of the clover also advances the intention of the enclosing system in several respects. By piercing the earth to a considerable depth, apertures or pores are created for imbibing and sinking deeper a greater quantity of atmospherical manure, so well defended by the shade of the top, and the friability thus communicated to the soil, affords a most happy facility to the plough, for turning in its vast bed of vegetable matter." The Cotton Plant, while young and tender, and sowed as I have recommended, appears to have every claim to these great facilities for improving the soil; and I cannot conceive why a mass of young Cotton, from 8 to 16 inches high, should not, when well buried in the earth, produce the same beneficial effects to the soil as the Clover, which is so much approved of in England and our sister States. With reference to the idea of conveying the trash and top soil from our wood lands, being preferable to clearing new lands, I hope it will not be deemed too theoretical, since I presume the greatest objection to the plan must be its difficulty, and I must think that the same time and labour devoted to this business, that it requires to clear and prepare new lands, would insure better crops and a preservation of much timber, which is now a scarce article upon many of our old settled plantations.

Your paper of the 25th of April, contained an interesting article relative to Hemp. Being unacquainted with its mode of culture, and plan of saving its seed, a few directions upon these points are requested from this writer, especially as respects the distance the plants should be apart in rich land, the proper time for saving the seed, and also for cutting the Hemp.

A COTTON PLANTER.

ALBIE, (London County, Va.) July 4, 1821.

DEAR SIR—

Under the head of "Virginia Husbandry," in your last number of the "American Farmer," you ask for

information on the best method of constructing Lime Kilns. Although it is not in my power, to give you this information, yet I can direct you where it may be obtained. Peter Lossing, of Buckman Town, Dutchess county, New-York, obtained a patent more than fourteen years ago, from the United States, for an improvement in the mode of burning lime.

I opened a correspondence with Mr. Lossing, some years ago, on the subject of his patent, and obtained from him the following facts, viz: That a kiln containing 1600 bushels, may be burnt in forty-eight hours, whereas in the old mode at least, double that time is required—that the saving of wood was in the proportion of one half—that the hands employed about the kiln were exposed but to little heat, and that the cost of construction was little more than the old method.

Dr. Thornton, who is at the head of the Patent Office, will, with pleasure, furnish you with the specification or description of the kiln, together with a drawing in perspective, which always accompanies the specification. I have no doubt you will render an essential service to the country, by giving it a place in your useful paper. While on this subject, I beg leave to suggest to you, the propriety of publishing a list of all the patents obtained from the United States, since the establishment of the patent office. Such a list has been published in the *Emporium of Arts*; but as this valuable book is only in the hands of few, the public receive but little benefit from it. Your paper has a great circulation, and the publication of such a list, might have the tendency of bringing into general use, some machine, art, discovery, or invention, which is now confined to particular neighbourhoods.

With great respect,

Your's &c.

WM. NOLAND.

REMARKS ON HEDGES, BENE PLANT AND PISE BUILDINGS.

TO THE EDITOR OF THE AMERICAN FARMER.

Bremo, near New Canton, Buckingham Co. Virginia, June 4, 1821.

DEAR SIR—I have received your's of the 4th and 18th May, together with the parcels of seed they contained, for which I return you my thanks.

An absence of six weeks is the cause that your letters did not reach me until my arrival at home on Saturday last, or be assured, Sir, they would have met with a more prompt acknowledgment.

All the seeds have been committed to the earth.—The prospect you have given me of getting into a stock of the Cherokee Rose, is doing me a great favour. I had learned through the *American Farmer*, the supposed value of this plant for hedging, and had been devising the means of obtaining it, with the hope, that it will be found to supply a want in American Husbandry, which has already grown to a serious evil, and increasing every year.

From the character you give the Delaware corn, I have no doubt it will prove a valuable addition to our other varieties.

I do not anticipate much from the Bene, as I made an experiment with it in this climate and soil some years ago, and found it brought too small a proportion of its seeds to perfection, to make it a profitable article of culture here. I think it highly probable, it would succeed upon the warmer and more sandy soils of the tide water and maritime districts of Virginia and Maryland—where too, it would find an advantage of an earlier spring and later autumn.—But as this plant, doubtless like most others, will by degrees become naturalized to a severe climate, I thank you for putting it in my power, to renew the experiment. I have placed it in an artificial sandy soil of good exposure, in my garden, and should this second effort, be attended with any results worth communicating I shall not fail to make them known to you.

I take pleasure in answering your inquiries as to my experience in Pise building. About this time five years ago, I erected two small buildings of this kind 14 by 16 feet and 8 feet pitch each, which have stood perfectly, affording the warmest shelter in winter and the coolest in summer of any buildings of their size, I ever knew. In the execution of these buildings, both as to materials, tools and apparatus, I followed the directions contained in the book of S. W. Johnson, of New Jersey, entitled *Rural Economy*, and are essentially the same as those lately published in the *American Farmer*, from the Report of Henry Holland, to the Board of Agriculture.—From the fairest estimate I could make of the cost of this mode of building, compared with brick walls, (which cost higher here than with you, on account of the greater expense at which lime is obtained) it was, to the best of my recollection, one half less. With earth of the proper kind, faithfully rammed, in the order recommended (for I found the proper degree of moisture to be all important,) I have no hesitation in saying, I consider it the cheapest and best of all the permanent modes of building, of which I have any knowledge—and nothing has prevented my executing all my out houses, such as quarters, and for the other purposes of rural economy in this mode of building; but that my affairs would not admit of withdrawing as much of my attention from them, as would be necessary to give my personal superintendence to insure the faithful execution of the work with common labourers.

A third experiment which I made in Pisé, is more decisive of its value than those already mentioned.—In the following summer after the two buildings already mentioned were erected, I commenced the third, under the management of an agent, who although inexperienced in the business, was intelligent, and I thought might be trusted with the execution of the work, aided by occasional visits from myself. I soon found the work was not as faithfully done as I desired to have it; and when the walls were raised to about two thirds of their intended height, I became so dissatisfied with the workmanship, that I determined to proceed no farther with it, until I found it convenient to superintend the execution myself.

—The walls were covered with a thatching of straw which afforded but imperfect shelter the first and second winters, since which they were almost entirely exposed, giving myself no concern about them, having made up my mind, that whenever I resumed the intention of finishing the house, the work would be removed as useless rubbish. This spring it became necessary for me to go on with my original design, and upon examination, I found those exposed Pisé walls in such a state of strength and preservation, as, by taking off six or eight inches of the upper surface which had been penetrated by the frost, to bear a superstructure of a thirteen inch brick wall, between three and four feet in height to complete the story. The roof was immediately put on, and I have observed not the slightest appearance of failure in the walls.

In the course of these experiments, I satisfied myself, it would be an improvement in this mode of building, to change the plan of forming the Pisé walls upon the foundations of the building, by means of the moveable frame work and side planks—to which I found the following objections in practice:—Without a greater degree of accuracy in the making of all the parts of the frame, than common workmen are adequate to, the mismatching the parts of the frame in removing, produces much loss of time in getting each piece to its right place. I found it, also, difficult to maintain the frames in a perfectly perpendicular position—and above all, you cannot detect the deficiency in the work until it has proceeded so far as to render it inconvenient to remedy. To guard against these objections, as well as to secure other advantages which I think are manifest, I have resolved to execute my future Pisé walls in separate and distinct blocks—formed in frames, made of 2½ or 3 inch plank stuff of less thickness, would yield to the pressure necessary to form perfect Pisé. The width of these frames must of course be regulated by the thickness

of your walls. For small single story buildings, I think 12 or 13 inches enough—and to keep each block within a size and weight convenient for building, I have fixed the other dimensions of my frame, at 18 inches in length—and of a depth sufficient to have something to spare when it contains a block 3 inches thick.

It is necessary to have greater depth of frame than thickness of block required, in order to hold the necessary quantity of earth in its loose, unpacked state.—To defend the edges of the frame against the indirect stroke of the pisors, they should be covered with an iron plate, made to adapt itself to a slight bowing of the inner edge, for the obvious purpose of directing to its proper place, any small deviation of the stroke. These frames are put together by two strong tenons at each end of the transverse pieces which pass through the mortices made to receive them in the longitudinal sides of the frame—taking care to leave a sufficiency of timber both in the tenons, to sustain a pin, which must pass through them to keep the sides together, and beyond the mortices in the longitudinal or side pieces, to prevent the ends or transverse pieces from being forced out by the powerful pressure they have to resist. For each of these frames there must be an even surface of cut stone, to which it is attached by two iron cramps, taking hold of the stone below, and the upper edge of the frame.—Thus prepared, with half a dozen of these frames, under a shed, which will be necessary to shelter the blocks when made;—with suitable earth previously dug, the making of Pisé, may be an in-door job for rainy days and hours of leisure.—Two hands to each frame are as many as can operate to advantage. The work will be better executed in this mode, because neglect will be more easily detected; and with a stock of Pisé blocks on hand, it will be an undertaking of no more time or difficulty, to erect a Pisé building, than to put up a log house. In laying the blocks in the wall, I would recommend a joint of lime mortar, although I think well wrought clay would answer. In order to turn out the blocks from the frames, to which they adhere with great tenacity, the tiles upon which the frames are laid should be as light as is consistent with affording a base of sufficient firmness to sustain the strokes of the pisors; in order that when a block is completed, the whole apparatus with the mass it contains, may be turned upon its sides for the convenience of driving out the pins, to separate the parts of the frame. A thin layer of dust will be necessary on the surface of the stone, and as much as will adhere to the inner surface of the frame before the earth is put in for ramming. I formed a bar of inch square iron about 3 feet 6 inches long; rounded, for the convenience of holding, ten or twelve inches at its upper end; and having a tap two inches square upon the lower end, a better pisor or beater than those made of wood according to the directions given in the books.

If any combination of the mechanical powers can be devised at a reasonable expense, by which Pisé blocks of the size above mentioned, or larger, can be formed by a rapid operation, I am persuaded, it would be the greatest discovery ever made in the art of building. I have been flattering myself that the machine for making bricks by compression, said to be in operation some time ago in Baltimore, or its vicinity, might turn out, if not in its present form, under such modifications as some fortunate mechanical genius may give to it, to be this great desideratum in Pisé operations.—Some notice in the *Farmer* of this machine, I am sure would prove highly acceptable to many of your readers.

I am, dear Sir,

Your's respectfully,
JOHN W. COCKE.

FOR THE AMERICAN FARMER.

The best time to cut Timber.

SIR,
The scarcity of forest trees, in many parts of our state, is such as to demand the

most rigid economy in the use of them, either in building, fencing, or fire wood.—This fact must be familiar to every man who has had an opportunity of observing that there is a great difference in the durability of the same kind of wood cut at different times. This difference, it is believed by some ancient and observing men, is occasioned by cutting down at favorable or unfavorable seasons—the months of February and August are said to be preferable to all others for felling timber—where durability is desirable. Be this as it may, I have good authority for believing, that rails can be shewn which have lasted more than half a century, while others, of the same kind of wood, and on the same farm, have decayed in less than a dozen years. Should this astonishing difference be the effect of so simple a cause as the time of felling the trees, which is confidently believed, we ought surely to pay sufficient attention to the subject, to enable us to form a right conclusion. Experiments are requested to be made, and the results to be communicated.

A Farmer.

Note by the Editor—The importance of this subject, as an object of rural economy, is obvious—but it is one which has been very partially investigated. Judging from an able report which was made to Congress last winter, by the Board of Navy Commissioners, on the preservation of ship timber, and believing it to be their practice to have timber felled only in the winter, we conclude that the subject has undergone their particular consideration. All the papers from the Navy Board, which have met the public eye, have manifested an active spirit of philosophical research, which gives us confidence in the soundness of their conclusions, and if, in this case, we can borrow, as we will endeavour to do, the aid of *their lights*, we doubt not they will conduct us to the very desirable information which our respected correspondent seeks to obtain on the proper season for felling timber, with a view to its durability, under the exposures incident to farming uses.

BURLINGTON HAMS.—Method of Curing.

BURLINGTON, Feb. 3d, 1821.

Dear Sir,

I HAVE endeavored to obtain the information you requested respecting the mode of curing the hams which excited the enquiries of your Charleston friends, without succeeding to the extent of my wishes. The person who probably sent the hams to Charleston is an extensive dealer in both pork and hams, and a respectable store-keeper in this place. Considering the process as a valuable secret of his business, and having repeatedly declined a disclosure of his practice, he is averse to offend those who have been refused the information which you are desirous of obtaining; nor is he willing that his practice should be known to others, who might avail themselves of it to his injury—these are probably the reasons for his reserve on the subject.

As Burlington has been somewhat celebrated for the character of its hams, and as they are to be found of a good quality in most of our respectable families, and in some few instances, equal to any I have elsewhere seen, the best mode of curing them is claimed as the practice of several intelligent individuals of my acquaintance. The following receipt is,

I believe, one which has been sanctioned by the approbation of the best tastes among us, it has been used in my own family, and has been approved by the best judges among the genteel strangers who have visited us.

To 12 hams of common size, take 8 pounds of brown sugar, $1\frac{1}{2}$ of well chrysalized salt petre, and 5 of fine salt—Rub the hams with this mixture, and let them be one week in a cask with the skins downward—then make a pickle of the strongest coarse salt, of sufficient strength to bear an egg; add about 2 or 3 quarts of lie from hickory ashes, refined by boiling, and scumming—when cold, cover the hams with it, and keep them down by a weight; let them lie three or four weeks, according to their size, then hang them up in the smoke-house; after 24 hours, commence smoking them with sound hickory wood, and repeat this every morning until sufficiently smoked.

There is some difference in the subsequent practice of the best managers. Those prepared by the dealer first mentioned, have been wrapped in the finest, driest, and sweetest clover hay, and then tightly sewed up in strong canvas bags—they are then kept hanging up in the smoke-house, or packed for shipping: this mode is not always successful in preserving them from the fly. Burying them in very dry hickory ashes, and packing them in boxes kept in the smoke-house, and occasionally changed, and dried through the summer, has been found, in my practice, the most effectual mode of preserving them. When wanted for use they should be put in water the preceding evening, to dissolve the ashes adhering to them. If dipped in ashes when first taken from the pickle, it forms a coat which is useful in preserving them from the fly.

There is a great variety in the minute details of even good managers—but the use of sugar and salt-petre are the material points, common to them all. In my opinion, a great deal depends on the nature of the flesh of the several breeds of hogs. There is, in our country, a prevailing attachment to large animals: I have, like my neighbours, been deluded by this false taste. After a fair trial of the large breed of hogs, I have abandoned them as coarse in flesh, and deficient in flavor, and at the same time unprofitable in keeping; requiring to be kept long with a larger portion of food, according to their size, I have now two distinct breeds of hogs, one of the English White Suffolk breed, from the imported boar, represented in the Philadelphia Agricultural Almanack of 1820, the other, Cobbett's Black Hampshire breed—these I am crossing with the Spanish Black, of which I have now a fine boar in my possession, imported by my friend Joseph Elus Bloomfield, esq. from Cadiz—of the same breed with the Spanish hogs imported by Commodore Chauncey, at New-York, in the same vessel, and mentioned by Cobbett, as introduced into England by William Gauntlett, late a commissary in Spain, and superior to his Hampshire breed—These are kinds which I am keeping distinct, and likewise by crossing, will, I believe, enable me to secure the best breeds in our country or in Europe.

In an interesting communication from Mr.

John Lecky, an eminent dealer in pork and bacon, in Cork, he recommends the Suffolk breed to his fellow citizens—and also the Hampshire breed, as far superior in flavor or profit to the large pork, of the English Berkshire breed, shipped from Waterford, which he does not think worthy of encouragement.—See No. 5, 6, 7, of the Cork or Munster Magazine, No. XX. 1817.

WM. COXE.

Rowan Agricultural Society, NORTH CAROLINA.

Pursuant to notification, a number of respectable planters of the county met in Salisbury on the 4th of July, and formed and adopted a constitution for the Rowan Agricultural Society—the following gentlemen were then elected officers for the ensuing year:

Charles Fisher, President.
S. L. Ferrand and Robert Moor, Vice-Presidents.
John Beard, jr. Secretary.
Michael Brown, Treasurer.
James Martin, Alfred Macay, and Thomas Chambers, Committee of Correspondence.

The Society for the purpose of obtaining information on agricultural subjects, and to show the respect they think due to all patrons of this first of arts, elected John Taylor, of Va Dr. Walker, of Warren, D. Cameron, of Orange, G. W. Jeffreys, of Caswell, and his excellency J. Franklin, Honorary Members of the Society.

From the patronage that is expected, they are in hopes of being prepared to give such encouragement to the scientific and practical agriculturist, as becomes the large, wealthy, and liberal county of Rowan. For the purpose of commencing, the Society voted the following prizes, all, with the exception of the first, to be awarded at the Agricultural Show, which will take place on the first Thursday in the month of October next, in the town of Salisbury, viz:

1st. A premium of \$25, or two silver goblets, valued at that sum, for the neatest and best live fence or hedge, within the county of Rowan, to be inspected by a committee of the Society, in the month of November, 1824; at which time a particular account in writing, of the mode of cultivation, must be furnished to the Society.

2d. A premium of a silver Cup, valued at \$10, for the best Colt or Filly, of the last spring's foaling; pedigree to be furnished by the owner at the time of showing.

3d. A premium of \$5, for the best Cow Calf, and the like sum for the best Bull Calf, of the last spring's production.

4th. A premium of \$5, for the best two horse Plough, and the same for the best one horse Plough, both to be manufactured in the state. Honorary premiums will also be given for the best Models of other Farming Implements.

5th. A silver Cup, worth \$10, for the most approved practical Essay on the subject of manures, particularly vegetable and atmospheric.

6th. A like premium for the most approved practical Essay on the raising and management of all kinds of live Stock, in which the errors and defects of the present practices must be plainly pointed out, and a better plan recommended. These Essays must be delivered to the President of the Society by the 20th of September.

7th. For the encouragement of household manufactures, that useful branch of domestic economy, a premium of \$10, will be awarded for the finest and best piece of Homespun Cloth, (not less than ten yards,) made either of wool and cotton mixed, or wool alone. Honorary premiums will also be given for superior specimens of other kinds of home manufactured cloths.

8th. For the encouragement of that part of our rural economy pertaining to the dairy, a premium of one half dozen of elegant silver Spoons, will be given

to the person producing the best specimen of Cheese; in two cakes, not less than 10 lbs. each, and to be made during the present summer.

The cause of Agriculture and Domestic Economy, will be promoted by a general attendance of the farmers of the county, on this interesting occasion; and all persons are invited freely to come forward and compete for the prizes. Even those not disposed to enter the list, will aid the cause of improvement, by bringing superior specimens of any thing they may have, either in the agricultural or manufacturing line; as also models of ploughs, harrows, and various other farming tools.

Every necessary arrangement and preparation for the convenience of the Show will, before the day arrives, be made. Pens will be prepared for the different kinds of live stock, and a house for the display of the other articles that may be brought, whether for inspection or sale.

All such shows, from their nature, partake of the character of a Fair. Without doubt, many of the articles brought forward on that day, may be sold on better terms than on any less public occasion. It will be a place, where persons wishing to sell, and those wishing to buy, may be mutually accommodated. Many exchanges may also take place, thus accommodating both sides without the aid of that scarce article, money.

A person will be employed, at the expense of the Society, for the purpose of auctioneering any article that the owner may wish to dispose of in that way.

It is thought proper to make these statements at this time, lest some persons might be deterred from bringing specimens of stock and other products to the Show, by the fear that there would be no way of keeping them in safety when here; and in consequence of this apprehension, be prevented from paying that attention to improvement during the summer, which it is the object of the Society to excite.

After the business of the Society was performed, the President delivered an address, which was ordered to be published with the proceedings of the Society.

[Carolinian.]

[From the Hartford (Conn.) Mirror.]

American Grass Bonnets.

It is with no ordinary degree of pride, as well as pleasure, that we have recently learned, that the British Society of Arts in London, have awarded to Miss Sophia Woodhouse, of Wethersfield, in this state, a premium of twenty guineas, (equal to \$93.33,) together with a silver medal of the Society, for the elegant specimen of grass bonnet made by her, and exhibited in this city, at the Cattle Show, and Exhibition of domestic manufactures, in October last. This award was made on conditions to be hereafter complied with by Miss W.; but the object of them is to introduce into Great Britain the cultivation of that species of grass of which the bonnet is made, with the view of its becoming hereafter an important article of manufacture in that kingdom. When we advert to the fact, that the British Society of Arts was instituted for the purpose of encouraging their own industry and ingenuity, and that in no instance, it is believed, until the present, they have transcended the limits, to which they have hitherto confined themselves, of dispensing their honors and rewards to their native inhabitants only; we shall be disposed the better to estimate their liberality in thus overstepping the bounds of national distinction, and their patriotism in endeavouring to profit by the enterprise and ingenuity of others, in order to add to the wealth of their own country, by extending the sphere of its industry.

But, while thus acknowledging the liberality and public spirit of others, we ought not to be unmindful of what we owe to ourselves. To Miss Woodhouse and her sister is due, in the first place, the praise of having discovered a material equal in strength and surpassing in fineness the straw of the wheat from whence the far famed Leghorn hats are made, and the merit of converting this material, heretofore of comparatively no value, into an article of dress, which is now almost universally used in the Atlantic states, and for the purchase of which millions of dollars have heretofore been sent out of the country to reward the industry of Italian females. This laudable example has only to be followed to the extent of which it is entirely in our power to carry it, to become of great importance to our country at large. Our agricultural societies, by their zeal and well directed efforts, have done much towards stimulating the industry, and increasing the intelligence of our agriculturists, and in developing the resources of our country. But their efforts to be extensively useful, and fully successful, must be seconded by the zeal, liberality, and good sense of our own people. It will be in vain, that a few attempt to lead, if the multitude refuse to follow. It is only by the general infusion, into the minds of the great body of our fellow citizens, of a common spirit of industry, enterprise, and liberal exertion, that any thing great can be accomplished. Extensive good can be achieved only by united efforts.

These remarks are made chiefly with the view of directing the attention of the people of this state, to a branch of manufactures, which, if extensively pursued, would be attended with an ample reward to the industry of the individuals who should undertake it, as well as great advantages to the state at large. Few states can boast of a better population than the state of Connecticut,—industrious, frugal, and contriving. Our young women are marked also by a character of good sense, prudence, industry, and ingenuity. Very many there are, who, like Miss Sophia Woodhouse, could undertake this manufacture with advantage, and carry it to an extent to which, it may be apprehended, that lady may now be prohibited from extending it.* Nor would an ample remuneration of their industry be wanting. It is a fact, which has recently been ascertained by actual calculation, that the sums, which have been paid by the different dealers in this city for the purchase of Leghorn hats, since the commencement of the present year, will amount to forty thousand dollars. What if the whole of this sum had been paid to the young women in the town of Wethersfield!—Instead of pointing to their church, as the only and respectable monument of female liberality and industry, in a few years it might be their boast that the whole

* It may be proper to inform our readers who reside at a distance, that the cloer Miss W. to whom chiefly our remarks are applicable, and who is one of three sisters who have engaged in the manufacture of grass bonnets, has recently been married, and is now Mrs. Wells. The maiden name is however retained in this communication, as being the only one by which, in reference to the subject of this article, she is known to the public.

town had been rebuilt and embellished from the effects of the industry and ingenuity of its young ladies.

As some misapprehensions have gone forth to the public concerning the grass bonnets, manufactured at Wethersfield, and exhibited at the Cattle Show and Exhibition of domestic manufactures in this city last October, the writer of this will close his present remarks with a brief statement of facts concerning those bonnets. The one, which obtained the first premium from the Society, was made by Miss Sophia Woodhouse. That, which obtained the second premium, was made by Miss Mary Woodhouse. The first was purchased by Mr. Lorenzo Bull of this city, who gave Miss S. W. the choice, of her own price for the bonnet, or of sending it, free of any expense, to be sold for her account in London. It was purchased, and sent to London to Mr. Marcus Bull, now residing there, and whose situation, being engaged in the great engraving concern of Messrs. Fairman, Perkins & Co. in their negotiation with the Bank of England; gave him access to many of the ingenious men and artists of that city.

It was exhibited at Sir Joseph Banks's during the life of that distinguished man. A member of the Society of Arts requested to be permitted to offer it to the Society for a premium, and become the channel through which the discovery should be communicated to the British public. This was assented to by Mr. M. B., from the liberal desire of extending the benefits of the discovery to that nation which was about to patronize the undertaking he was engaged in, as well as from a laudable wish to confer an honor upon Miss Woodhouse, and do credit to the ingenuity of his native state. The result was, as has been before stated. The British Society of Arts voted to Miss W. a premium, and their silver medal on certain conditions; the evident object of which is to obtain a full knowledge of the material from which the bonnet is made; its mode of cultivation, and mode of preparation for manufacture; and thus to engrat on their own industry the skill and invention of others. A letter from Mr. M. B. of the 12th May last, states that the bonnet had been extensively shown in London, and admired—that this single specimen, he had no doubt, might be sold for twenty guineas,—and that he had been able to find but one bonnet made of the Leghorn straw which would compare with the American grass in fineness, but was deemed inferior in hue and complexion, and this was of 62 rows, and was stated to have cost 18 guineas.

The second bonnet referred to before, made by Miss Mary Woodhouse, was purchased by a gentleman in this city for \$25, was sent to New York, exhibited there, sold at auction at the Tontine Coffee House for \$39, and presented to Mrs. John Quincy Adams, by whom, it is believed, it is still worn.

The Leghorn wheat straw, prepared for manufacturing, has been, and can be, imported into Great Britain for 8s. 6d. sterling the pound. But from the facts, that a very small proportion of it is as fine as the grass in the Wethersfield bonnet, and that the coarser straw is found to

be of but little value when manufactured, and not saleable, the attempt to manufacture it in that country has been laid aside. The American grass, therefore, if fine, might be made to supplant the Italian straw in the British market, and might, when prepared for manufacturing, become an article of export.

From the foregoing facts two conclusions may be deduced. First, that the British, who are remarkable for a jealous attention to their now manufacturing and commercial interests, deem it for their advantage to become possessed of our grass for manufacture in preference to the Italian wheat straw, which they already have in manufacture, and can have in the raw material. And second, if it be their interest, it is equally our interest, in this particular, to improve our own resources, to foster and reward our own native industry and ingenuity, and extend the sphere of their usefulness; rather than, from an injurious and senseless preference of foreign gewgaws and foreign manufactures, to overlook a material which grows with spontaneous profusion at our own doors, and under our own feet, in favor of another which is admitted to be inferior by critical judges, and which seems to have no merit exclusively its own but that it is brought from a far country.

*A Member of the Harford County?
Agricultural Society. }*

ON FENCES,

By JAMES WORTH—read before the Agricultural Society of Bucks' County, Pennsylvania, Nov. 1820, and ordered to be published in the 'National Recorder.'

SHARON, November 10, 1820.

Dear Sir,

Agreeably to an intimation, which I made to the Society on a former occasion, I will now offer some observations on the subject of Fences. It is in vain for the farmer to sow and till his crops, unless he protects them by a good fence; but it has really become an article so expensive, and, in some instances, so difficult to obtain, that much damage has been sustained; and, as the evil must continue to increase, until a proper remedy is applied, it behoves us, without delay, to take the matter in hand, and consider it in all its bearings.

There seems to be such a perpetuity in all things relating to Agriculture, that a farmer should calculate on an improvement to the end of time—an I would not be unwise in him to commence a work, which can only be completed in his latest posterity.

Now although a fence cannot last forever, yet we shall I presume need fences, as long as agriculture is practised, and therefore I wish to call the attention of the members of our society, as well as others, to some permanent provision. I do not flatter myself that I shall adduce a plan that will be wholly relied on, but I offer it as one of my own, and as the best I have to give. I challenge the production of a better, and assure you it will afford me great pleasure to see it out done.

Before I enter upon my ground, I will take a brief view of the several kinds of fences which have come to my knowledge. The worm fence is generally made in new countries where timber is plenty; but as timber fails, the post and rail, and other kinds are resorted to, it will be unnecessary to take the former into calculation, as it is not applicable to this neighbourhood. I then estimate that three rails of chestnut or cedar, and post of white oak or chestnut, with ditch, will cost from 60 to 67 cents per panel; four ditto, ditto, with bank, about 67 cents; five ditto, ditto, 75 cents; five ditto, ditto, with lime and sand posts, from 87 to 100

cents; wire fence, with wood posts, about 100 cents; stone do. where stone is plenty, from 100 to 125 cents; five fences or hedges, with protecting fences, about 75 cents. Bank or sod fences have not sufficient data to calculate cost, or utility.

Messrs. White & Hazard, the inventors of the wire fence, calculated, that by substituting live posts, that is, by planting trees of proper kinds, at suitable distances, an immense profit would be produced, which they considered as yielded by the fence, when, in fact, it was solely applicable to the soil—because in the exact proportion as those trees produced, would the borders of the field be exhausted—and, by sowing the seeds too near them, an additional wastage would take place; thus it is with hedges—they seem to be cheap in the first instance, but the exhaustion of the soil alone would, in my opinion, render them a very dear gift; nor do I believe they will be found so durable, as has been imagined—for I am told, that a grub has already attacked one species of the thorn; and I have often seen sassafras, cherry, and other trees, with abundance of grass growing along the hedge rows, which will most assuredly bring on a decline, in the course of a few years; besides, I have never seen a hedge that was proof against hogs. I admit that they might be kept in better order, but it will be expensive, and require more attention than our farmers are willing to bestow. Upon the whole, I am surprised that this species of fencing should have been introduced amongst us in the present state of our country, and can only attribute it to the prejudice of foreigners, who have been accustomed to it from necessity. With respect to lime and sand posts, I believe a patent has been obtained for making them. Small stones are generally mixed with the lime and sand—they look neat, and appear substantial, and will probably answer a good purpose where the materials are cheap, but can only be put up in dry weather—and it will be necessary to dig a foundation to guard against frosts.

Where stone is plenty, that kind of fence could be made to advantage, especially along waters and banks; but for general purposes, the post and rail is to be preferred to all others—three or four rails in height will do very well along woods where it is necessary to have a ditch to cut off the roots of the trees, to prevent their effects upon the adjacent fields, or in any situation where a ditch is wanted; four rails, with a rank thrown up about a foot high, is sufficient for most purposes; but it requires continual care to keep up the bank, and it occupies too much ground, nor can the borders of the field be kept entirely clean: this is the kind that I made choice of, in improving my farm—but I am now convinced of my error, and decidedly prefer the fine rail, because it occupies less ground than any other and is more easily kept clean.

Having determined in favour of the post with fine rails, for general purposes, I turn my attention to that particular kind, and will proceed to provide for its future supply, in the following manner to wit: plant an acre of ground with chestnut and locust seeds, five sixths of it with chestnut for rails, and one-sixth with locust for posts.—I calculate that four trees will grow on a perch, making six hundred and forty on the acre—I suppose that forty of them will fall, leaving six hundred trees; that each tree will produce in thirty years, and every twenty or twenty-five years afterwards, twenty rails or posts, which will yield at each cutting, twelve thousand posts and rails, or two thousand panells—then say that the acre of land is worth eighty dollars, it will reduce the materials to four cents per panel, which, with making and putting up, will not exceed twenty-five cents, and in point of durability, I am persuaded that it will be excelled by none, except the stone, and it will have an advantage over it, by being movable when necessary—but it may be said that my calculations are extravagant; reduce the product if you please, to one half, and you only add four cents per panel to the fence. Now I ask, can any cheaper or better plan be devised? If there can, I hope it will be produced; for my object is to advance the interests of Agriculture—and, if even the exposure of errors should be the means of exciting others to engage in the good work, my purpose

will, in a great degree, be accomplished. I submit the above observations to the consideration of the Society—and am respectfully,

Your obedient servant,
(Signed)

JAMES WORTH.

THOMAS G. KENNEDY, Esq.
Secretary Ag. So. of Bucks' County.

To save Cucumbers from Bugs.

Set out an onion, or set up an onion stalk, in each hill of cucumbers, and the streaked bug will keep away.

To destroy the Canker Worm.

Mow sweet elder, as it is called, or common elder, and place the same on the branches of the trees infested with them, and they will immediately leave the branches.

Dysentery.

A decoction of the roots of blackberry bushes is a safe, sure and speedy cure for the dysentery.

Shearing of Sheep.

The following method has been found effectual. Immediately after the sheep are shorn, soak the roots of the wool that remains all over with oil or butter and brimstone; and three or four days afterwards, wash them with salt and water, and the wool of the next season will not only be much softer and finer, but the quality will be greatly enlarged; and the sheep will neither be troubled with the scab or vermin that year.

THE FARMER.

BALTIMORE, FRIDAY, AUGUST 10, 1821.

PRICES CURRENT.

Flour from the wagons, \$5 a 5 1/2—Whiskey from do. 25 cents—Wheat, \$1 a 1 05—Corn, 37 a 42 cts.—Rye, 40 a 41—Oats 30—Live Cattle, \$1 a 6—Cod fish, per quintal, wholesale, \$3, retail 3 50 a \$4—N. E. Beans per bushel \$1 1/2—ditto Peas, 75 cents—Plaster in stone \$6 per ton—dn. ground, \$1 35 per barrel, 33 cts. per bushel, \$8 per ton—New-Orleans sugar, \$9 to \$12 50—Muscovado, do. \$9 a \$12—American White Lead, \$12 50—Ground do. 15 a 14—Lined Oil, 75 cents—Feathers, 40 a 45 cents—Shad, new, \$6—Herrings, \$2 a \$2 25, declining—Fine Salt, 55 cents per bushel—Ground Alum do. 35 a 60—St Ubes, 60—Cadiz, 50 a 55—Turk's Island, 75—Beef, 8 to 10 cts. Hams, 10 a 12 cents—Middlings, 10 cents—Butter, 25 cents—Peas 50 cents per bushel—Eggs, 12 1/2 cents—Cheese 8 a 10 cents per pound—Tar \$2 1/2—Turpentine, new dip, 2 1/2—Hard, 1 50 to 1 60—Pitch 2 a 2 25, nominal—Rosin, common, \$1 3/4—Varnish, 25 cents—Spirits Turpentine, 33 cents per gallon.

Virginia Tobacco—A few hogheads Virginia Tobacco of inferior quality at \$6 a 6 50—2 hlds. do. at 6 50 a 8.

Maryland Tobacco—same as last week—Fine ditto, scarce, but much in demand.

Printed every Friday at \$4 per annum, for JOHN S. SKINNER, Editor, by Joseph Robinson, at the N. W. corner of Market and Belvidere streets, Baltimore, where every description of Book and Job Printing is executed.—Orders from a distance for Printing and Binding, with proper directions, promptly attended to.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua si bona norint
Agricolae." VITRO.

VOL. III.

BALTIMORE, FRIDAY, AUGUST 17, 1821.

NUM. 21.

AGRICULTURE.

EDITOR'S NOTES ON THE HUSBANDRY OF
SOME COUNTIES IN VIRGINIA.

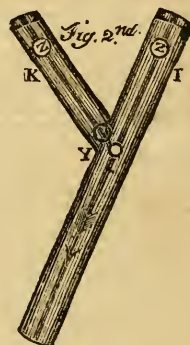
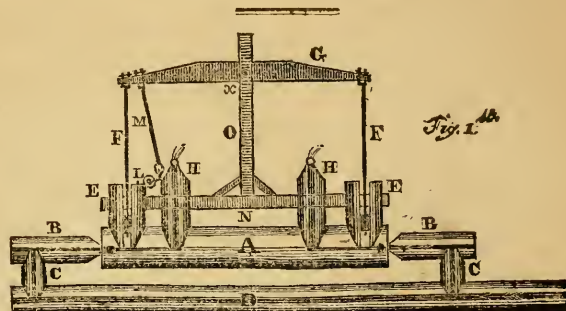
*Hydraulic Machinery in operation on Col. Kontz's farm
at the "Big Spring," in — County.*

On the 18th of August, stopping in the afternoon at the "Big Spring" tavern, I drove away the ennu which is apt to come over the mind and feelings of a languid and solitary tourist, by examining an Hydraulic contrivance, just then going into operation, on an adjoining farm belonging to Col. Kontz, who was superintending the work. By means of a forcing pump, of simple construction, moved by the power of a single spring, emphatically and truly called the 'Big Spring,' the water was driven to an elevation of 52 feet, at the distance of nearly 400 yards—there it served to supply the kitchen and stable, to irrigate the garden and adjoining grounds—in a word, to answer all those valuable domestic purposes, for which water is indispensable, and in most cases obtained in quantities too small, or at an immense expense of time, labour, and money. In this instance, I was informed by Col. Kontz, that the whole cost of the improvement would not exceed \$200, independently of the timber, and a few days labour performed by his own people. I was forcibly impressed with the importance of obtaining a knowledge of the principles and construction of an engine, which would enable others, at so small a price to command advantages so eminent on farms, through which small streams of water now almost uselessly flow. Wherever they create the power, it only remains for us to apply it, as Col. Kontz has done, to possess and enjoy conveniences as great—and I now submit a drawing and description of his engine, that my readers may profit if they please, by his experience. In its present shape it may be available to many, and we are assured, that no one could have any reason to be dissatisfied with its performances, still we do not suppose that it would be found the best means, in most cases, to accomplish the desired end. It requires a considerable current or fall of water—and is, perhaps, a more expensive construction, than we need make under any circumstances. It is not my intention to enter into any investigation of the principles, nor attempt a description of the various Hydraulic engines, that have been relied upon to elevate water for agricultural purposes—for I am authorised to expect, that a professional gentleman will, at an early day, furnish me with an elucidation of these that will be found more satisfactory to my patrons than any which I could give.

I should deem it a matter of supererogation, to dwell for one moment on the great importance of farmers being made acquainted with the cheapest means of turning their springs and water courses to the greatest account.

"Point de l'eau point de jardin," is a proverb of the best gardeners in the world—and we might almost ask what can be done without it? If it should be in our power to show the farmer how, by the application of certain mechanical principles, he may, at a small expense, draw the feeble stream of a neighbouring valley, into his barn-yard, garden, kitchen, and dwelling—how, in a word, he may cause it to turn from its natural and comparatively profitless course to become the dispenser of many domestic comforts, and the cause of great fertility, I shall consider myself amply compensated for all the labour that I could bestow upon the subject.

Description of an Hydraulic Engine, built for Col. Kontz, at the "Big Spring," Virginia
BY WILLIAM BERKLEY.



A is a log 12 feet long, and 22 inches diameter, these boxes the lower end of the piston rods F F perforated at its ends about five feet to receive logs pass, and are screwed. The rods are of iron, 7 feet B B, 2 feet long, and 14 inches diameter, bored nearly long, and 14 inch square, having a strong joint near through, and one end pointed and inserted into log A, having a valve in each of these pointed and inserted into the upper end, close under lever G, to which they are fastened by a joint, and a screw bolt that passes ed ends. The small logs C C, of 14 inches diameter, through the lever. H H are called uprights, 20 inches and about 20 inches long, are at right angles inserted diameter, 3 feet 3 inches high, including both ten at one end into B B, and the other ends into the longons bored the whole length, each having a button valve let into the upper ends: they are inserted into pipe D, which conveys the water from the spring to the machine, and lays along side of log A. All the log A, about 43 feet from its ends. Logs I and K logs above noticed are placed in horizontal positions, unite at Y, (Fig. 2) and convey the water from the machine. Within a foot of each end of log A, are perpendicular H H, at Z Z, and convey the water from the machine, lastly inserted two logs E E, 20 inches diameter, and 2 to the house or desired elevation L represents one feet 9 inches long, including the tenons—the upper end of the water wheel shaft, and a crank similar to ends of these logs are bored 2 feet 3 inches, with a 43 inch augur, to receive metallic cylinders, half an inch thick, which of course reduces the bore of those cylinders or chambers, as they are called, to 34 inches diameter. The pistons work in these chambers, and which surrounds and confines, by means of keys, the boxes are made of green gum wood—these are 6 chambers E E, and the uprights H H. O is one of the inches long, and turned to the size of the chambers perpendicular timbers that are strongly framed into in the middle, for an inch; the other 24 inches of X: between this and the other upright, (not seen in each end are turned as much less as will allow thick (the plate) the lever works on a pin near X—the lever sole leather to be nailed around them, and yet work G. is 10 feet long, 4 inches thick, 8 inches high in in the chambers. The leather should be 24 inches the middle, and tapered to 5 inches at each end. The broad—be nailed around the boxes, and about three pitman is so joined to the lever, and the crank so quarters of an inch from the shoulder. Through constructed as to length, that at every revolution of

the water wheel, each end of the lever will rise and fall 18 inches—of course the pistons will make a stroke of 18 inches in their respective chambers; and, as a piston is raised in the chamber, it draws the water after it out of the conveying pipes B, C, D; so, when it descends, the valve in the end of the pipe B instantly shuts, and prevents the water from escaping—then, of course, as the piston continues descending, the water is pressed in one end of log A, through upright H, into conduct pipes I or K. Again, as soon as the piston discontinues pressing, and begins to rise, the valve in the highest end of upright H, closes, and retains the water in the conduct pipes I or K, which unite at Y, and may be prolonged at pleasure. The height to which the water is raised, is 52 feet above the engine,—the distance conveyed is about 400 yards. The water wheel makes about 10 revolutions in a minute; each revolution forces about one gallon of water, which delivers at my house 10 gallons per minute, or 600 gallons per hour. My water wheel is a common under shot wheel, 11 feet diameter, 2 feet in the float boards, the head and fall of the water 3 feet, two feet whereof is fall in the shoot under the wheel, and the other one foot is head—but this is reduced to 10 inches by the gate being generally drawn two inches—the gate is 22 inches wide; therefore the vent is in all equal to 44 square inches; under so light a head it vents and takes but a small quantity of water. The timber, out of which my conduit pipes are made, is pine, the logs next to the engine and until we have reached about 25 feet in perpendicular height, are from 18 to 20 inches diameter—but they gradually decrease thereafter from 15 to 12 and 10 inches. The bore of all the pipes is 2 inches, and 3-8ths; except the chambers H, I, as already noticed, and the socket ends of the joints; the last, for about 6 inches are increased according to the size and strain of the pipe logs, say from 3½ to 5 inches. I had iron bands made from 6 to 8 inches diameter, about 1 inch broad, one edge sharp, the other one fourth of an inch thick—these were driven round the bore into the socket ends of the logs of the first half of the perpendicular height, and they were, no doubt, very useful, as the tennon ends of the logs have to be driven into the socket ends; one end of two logs may thus be bound with one band. I have nothing to add, except, that all the joints are to be well fitted and driven. The straighter the timber, of which the pipes are made, the better—the crank should be truly plumb under the lever, and the shaft exactly at right angles with the foundation log A; for if this is not attended to, the crank will cause the lever to vibrate side-ways, at each revolution of the wheel, which throws the piston rods out of truth, and injures the machine. This part of mine had to be altered. The cost of the Engine was somewhat upwards \$200, including digging, &c.

ADDRESS OF JOHN L. NORTH,

On his election to the Presidency of the Farmers' Society, June 1817.

GENTLEMEN OF THE SOCIETY,

The very flattering mark of approbation and confidence that you have been pleased to bestow on me, leaves me no alternative; I have therefore to entreat you to exercise towards me, that indulgence which my predecessor has rendered so necessary, by his very able discharge of the duties of the chair; and to accept my warmest acknowledgments for the honor you have conferred. I will endeavor to repay the kindness, which, in elevating me to the first office in the gift of the Society, has overlooked so many errors and deficiencies, by a faithful performance of the obligation I have come under, and an early and zealous regard for the interests of the Society. Duly appreciating these promises, I cannot but persuade myself, that the following attempt at calling to your recollection, some of the purposes for which our institution was formed, and pointing out a few of the advantages of a close and constant attention to rural affairs, will not be out of place, at this time. It is a lamentable truth, that under the present mode of tillage, our lands are reaped in a few years, whilst the

crops we draw from them, give a very inadequate return for our expenditures of labor and money. To cut down and fence in our lands, to grow on them for a few years, annually decreasing crops, then to give them up to weeds and briars, and finally to abandon them in quest of new settlements, is the only rotation now in vogue amongst us. Nor do the evils of this system, great as they are, stop even here; they are usually only the forerunners of the most abject poverty; for it will easily be seen that it is scarcely possible to escape this condition, if to the loss sustained from waste and forced sales, we will take the trouble to add the expense of frequent removals, and the pernicious habits they either introduce or confirm. It was once hoped that this state of things would work its own cure, by leading us to enquire into its causes; and eventually to seek relief from such measures as promised it, at the least expense, and with the greatest certainty. It therefore was eagerly expected that ameliorating crops would soon regularly succeed those of an opposite character, recommended as these so strongly are, by successful experiment, both in Europe and this country. The system of manuring, without which there can be no profitable farming, and which can be obnoxious only to laziness or inveterate prejudices, it was supposed would immediately become a general favorite. The plan of pasturing fields, already injured by a series of exhausting crops, it was thought would speedily be abandoned, and the desolating course of tobacco, corn, cotton, wheat, rye and oats, shunned as the plague. Reasonable as were these hopes & expectations, I am mortified to say they have not been realized, and to add that our advancement towards such a change has been but partial and limited. To place its advantages in the clearest point of view, by comparing them with the folly and destructiveness of the mode of husbandry now practised by us, and thus to recommend this change for general adoption; to set an example in the work of reformation; to stimulate exertion by rewarding merit, and by encouraging enquiry, and diffusing information, to leave ignorance, and idleness, and prejudice without excuse, are among the most prominent objects of our association. But it is not to the introduction of a better mode of tillage only, that the views of the society are confined. The improvement of stock of every kind, constitutes another object of its anxious pursuit; and without taking into consideration the intimate connexion between attention to stock, and improvement in husbandry, may I not venture to assert, that there is not a person of the least taste or feeling, who has not often regretted the mean and degenerating condition, and felt for the sufferings of our cattle, exposed as they invariably are, with nothing but straw for their food, to all the severity of the winter. And can it be reasonable to expect that with such treatment, in winter, without shelter, and with a pittance so tasteless and unsustaining, and in summer with no other pasture than what our woodlands afford, that cattle will improve? Do you increase the power or usefulness of a mill, by lessening the requisite head of water? Are rivers made navigable by having their supplies cut off? Be assured that it is only to unremitting attention to their necessities, and even ease, we are to look with confidence for any material alteration in their size, appearance and usefulness. And when we turn our eyes to the state of our sheep, do we not see almost as much to censure? From observation and experiment, I have reason to think that this state is, in many respects, as friendly to the constitution and habits of this useful animal, as any of the northern states; yet their sheep surpasses ours, as well in size and beauty, as in weight and perhaps fineness of fleece. To what then are we to attribute this difference? Are our oak ridges so small and barren, that sheep cannot thrive on them, or is it because our winters are so long and pinching, and our summers are so wet and hot? Or perhaps it is for want of water and shade, that they do not prosper with us. In many of these particulars we have a decided superiority. Our ridges are large, and though unfit for the purposes of the plough, yet produce an herbage peculiarly grateful to sheep. Our summers are dry; I believe

less sultry and oppressive; and our winters are certainly less humid, more moderate, and of shorter duration; never failing springs and branches abound, and our country exhibits every variety of surface. To speak out then, it can be ascribed to nothing but our habitual, I had almost said, proverbial carelessness and inactivity, throughout the winter months especially, on the one hand; and on the other, to the diligence and care with which the farmers of the northward provide during the whole year, for the wants, and even comfort of this helpless, but valuable animal. I might enlarge on many other particulars to which the design of our institution extends; but on this subject I have already trespassed too long on your patience; I will therefore but briefly add, that it embraces every thing connected with rural affairs; the introduction of live fences; manners of animal, mineral and vegetable origin: their nature and suitability to our lands; the nature of our soils; draining and irrigation; the improvement of fruit trees; the dairy, and even the styce.

I come now to say something of the benefits of a close and continued attention to rural affairs; and these are so numerous and important, that I hardly know where to begin, or how to particularize. Perhaps I cannot fall on a better method to attain my object, and at the same time insure perspicuity, than that of contrasting the result of our manner of conducting a farm, with that of those who have taken the lead of us, in every convenient, elegant, and profitable improvement in husbandry. That we grow not more than seven or eight bushels of wheat on an average, whilst others raise as much again to the acre, I mention at once, as a reproach and incentive: will it be credited, that persons who are well assured that twenty, thirty, forty bushels and upwards, of this grain, have been produced on that quantity of land, will yet remain satisfied with seven or eight? In the Jew's letter to Voltaire, it is asserted, that upwards of one hundred bushels of wheat have been obtained from the acre; and that this was a matter of great novelty, may be inferred from their founding on that very circumstance, the charge of more than ignorance or negligence in Voltaire's silence on the subject. Nay, when in this district there have not been wanting, some two or three instances, where the average to the acre has exceeded thirty bushels, and yet unaccountable as it may seem, we still persist in farming it according to the old, laborious, pestilential and ruinous mode. In other respects the difference against us is equally great, whilst we grow but about one hundred or one hundred and fifty bushels of sweet potatoes to the acre, five times that quantity are made in the low country, from the same ground. I have heard of a Mr. Ford there, who has even raised one thousand bushels to the acre, and that with no other manure than the offal of the barn-yard; nor do our Irish potatoes generally stand on a better footing. I notice however, with pleasure, that in a solitary instance, in this neighborhood, in proportion to the land planted, upwards of one thousand bushels would have been taken from the acre. It is now necessary to inquire if these facts establish the advantage of good farming; or if these advantages be within our reach? With Indian corn too, the balance is evidently against us; although our soil and climate are admirably adapted to its culture, we seldom exceed forty bushels to the acre, on our best low grounds; and twenty on our high lands; whilst in New-Jersey, an acre has yielded one hundred and eighteen bushels, two quarts; and the average crop, after ordinary manuring, at the northward, I believe to be seldom less than fifty or sixty bushels to the acre. In one instance, in this district, I have known good tillage and manure to have occasioned in the same field, a difference of nearly three to one, in their favor. But I will detain you no longer on this point, than to beg of you to use the means within your power, vigorously and judiciously, and thus speedily to remove the reproach from us.

I have already remarked, that the cattle of this country are poor, ugly, and degenerating, and that nothing short of a total alteration of our treatment of them, will remedy the evil. To prove that it will

do so, I beg your serious attention to the following statements, in which have been so particular, because I hope that some of you may, by that means, be encouraged to imitate such worthy examples. "Col. Abel Chapman," says a writer in a respectable Boston paper, "has raised some celebrated cattle, which were weighed on foot last Thursday week. The weight of the largest ox was 2,716 lbs., the smallest weighed 2,240 lbs. The former exceeded by 12 lbs. the weight of the celebrated Durham ox, killed in England in 1807, and for which 2060l. sterling had been refused." The finest breed of bulls and other cattle ever reared in England," says Mr. Willich, in his Encyclo. "was that of the late Mr. Fowler, of Rollright, Oxfordshire, whose stock was sold by auction in 1791." Mr. W. "was among those who witnessed this enchanting exhibition of animals, and admired their incomparable size, form and vivacity. Fifteen prime heads of cattle, namely, five bulls and ten cows, were separately sold for the enormous sum of 2,464l. or, on an average, 164l. each; the finest bull, named Sultan, only two years old, was purchased by Messrs. Freeman & Eden, of Gloucestershire, at the price of 220l. 15s." It is stated in Mr. Niles' Weekly Register, page 136, No. 9, vol. xii, that "one hundred and eighty head of cattle, (one third of them yearlings and calves,) bred by a Mr. Price, near Upton, sold for the enormous sum of 7,600l.—one yearling bull for 341l. 5s.—a heifer for 232l." And, in No. 18, of the same vol. that "an ox bred at Springfield, Massachusetts, weighed on the hoof, 3,100 lbs. his length from the top of the nose, to the root of the tail, was ten feet seven inches; circumference eight feet nine inches." To obviate an objection that may here be made on the score of climate, &c. I introduce from Judge Johnson's Essay, delivered at the Charleston Literary and Philosophical Society, a fact that will go very far towards removing it. "Mr. Christopher Fitzsimons purchased a cow of the common breed that range over our pine lands; yet this cow, by being liberally fed, was brought to give as much milk, as twelve of those which ordinarily disgrace our cowpens, and her calf, when killed for veal, weighed as much as an ordinary two year old, and full as much as a calf of the large imported breed at the same age." Nor ought I to pass over, in silence, the amelioration that has taken place in the condition of sheep, principally amongst good farmers at the northward. Mr. Livingston, in his book on sheep, gives it as his opinion, that his famous ram Clermont, which at two years old weighed 149 lbs. would, when full mouthed, and in good order, go up to 190 lbs. In the essay above referred to, Judge Johnson mentions that "Mrs. Melvil, of Savannah, raised two pet lambs, which he had it in his power to ascertain were of the most common breed of the country; yet the fleece of one of those sheep weighed 14 lbs. the other 15 lbs. the wool was very fine, and the staple was of the average length of fifteen inches, some of it went up to eighteen inches." And I remember to have seen it incidentally mentioned in the account of a cattle show, near Philadelphia, in the year 1813 I think, that a wether weighing considerably more than 200 lbs. had been killed, in the market in that city, the year before. When to these facts we add others which you no doubt recollect, and compare them with such information as we possess, with regard to our own sheep and cattle, what further proofs can we require of the benefits that follow care, perseverance and judgment; or of the evils that attend negligence and sloth. That fruits may be increased to any desirable extent there can be no doubt, since it has been ascertained, that even the fig and black heart cherry, will answer very well here; and that they may probably be greatly improved. I again avail myself of Judge Johnson's essay; in page 22, he says "indeed it is scarcely credible to what perfection the peach and the grape have been brought in this state. One hardly dares assert, that the former has attained the size of a foot in circumference, and the bunch of the latter 3 lbs. in weight." In another place he says: "I have seen five different kinds of the most luscious grapes of Europe, heaped on a table in the month of October; and this was in the most obscure parts of the state." One more fact and I have

done. But a few years ago, the lands of Loudon county, Virginia, exhausted by the desolating rotation of wheat and tobacco, were purchased by a set of industrious and intelligent Pennsylvania farmers, at about five or six dollars per acre. The same lands, improved as they are, by manures and judicious farming, will now bring from forty to fifty dollars per acre.

Before I close these few statements and remarks, I feel it my duty to beseech you to attend more diligently to such experiments as you may undertake, with a view to the advancement of the plans of our institution; and to conquer that bashfulness, which keeps you from communicating the results, whether prosperous or adverse, with such observations as you may make on the causes of failure or success. The zeal of a few individuals may remove some of the smaller objections from the stream of agricultural knowledge; but it is only by the united and spirited exertions of all, or most of the members of this society, that it can be so cleared out and deepened, as to be made extensively and permanently useful. Books may and will assist us; but they will not supersede the necessity of candid personal observation and experiment. It is only on these often repeated, carefully noted, and honestly communicated, that we can build our improvements. We may learn a great deal of a country from the writings of others, 'tis only by travelling over it frequently ourselves, that we can become intimately acquainted with it. I have now nothing to add, but to express a hope, that we will remain no longer insensible to our favoured lot, or regardless of our own comfort, or the welfare of those that may come after us.

CONSTITUTION OF THE

Rowan Agricultural Society.

1. The society shall be styled the Rowan Agricultural Society.

2. The society shall be composed of *regular* and *honorary* members. The regular members are those who attend the stated meetings of the society, and assist in its transactions. The honorary members are such gentlemen (not residing in the county of Rowan) as the society may think proper to elect, but when attending, they shall have all the rights and privileges of regular members.

3. The officers of the society shall be a President, two Vice Presidents, Secretary and Treasurer. They shall be elected by ballot at the spring meeting, for the term of one year. There shall also be a Committee of Correspondence, consisting of three members.

4. The President shall preside in the society at its meetings, and preserve order and decorum. In the absence of the President, his duties shall be performed by the 1st Vice President; and in his absence, by the 2d Vice President. When neither of these officers is present, then the society may call any member to the chair for the time being. The President, at his own discretion, may, or at the request of any five members, shall, call a meeting of the society, first giving ten days notice thereof in the Western Carolinian.

5. The Secretary shall record the transactions of the society. He shall receive in charge all the papers of the society, carefully filing away all letters and communications belonging thereto. He shall take charge of the books and other property of the society.

6. The Treasurer shall have in charge the funds of the society, from whatever source arising, and disburse the same only on the writ-

ten order of the President. He shall keep a book, wherein his accounts shall be fully stated, and which shall be free to the inspection of the society at every meeting: at the annual meetings he shall make a detailed report of the pecuniary concerns of the society, stating what moneys received, how expended, and the balance on hand.

7. The Committee of Correspondence shall open and carry on a correspondence with other Agricultural Societies, and with intelligent individuals in different sections of the country, for the purpose of collecting information on the most approved methods of cultivation, and for the procurement of the best models of farming implements. All the information and communications received by them shall, at the first meeting thereafter, be laid before the society.

8. It is considered the particular duty of every member of the society, diligently to turn his attention (as much as his situation will allow) to the study of agriculture, and on all occasions to impart to the society any improvements or discoveries he may make; also, to use every exertion in his power to procure correct models of the most approved farming implements in use in any part of the country.

9. It is the duty of the members regularly to attend the meetings of the society; and each member may at any time bring with him into the society one friend as a visitor.

10. Ten members, with the President, or either of the Vice Presidents, or twenty members without either of those officers, may constitute a quorum to transact business.

11. There shall be two regular meetings of the society in each year; one on the first Thursday in the month of October, which shall be called the *annual meeting*; the other, on the last Thursday in the month of March, which shall be called the *spring meeting*.

12. At the same time and place of the annual meeting, the *Agricultural Exhibition and Cattle Show* shall take place; where all persons are invited to attend and bring fair specimens of agricultural productions, and all kinds of stock; also, models of farming utensils and specimens of domestic manufactures: the prizes and premiums are free for the competition of all persons within the state of North-Carolina.

13. The society shall, at the preceding meeting, determine the objects for which premiums shall be offered; but this shall not prevent them, at the time of the show, from awarding honorary premiums for superior specimens of any thing in the agricultural or manufacturing line, that may be brought forward for inspection.

14. The President and Vice Presidents, together with the Committee of Correspondence, shall compose a board, to make all necessary arrangements for the exhibitions.

15. The President and Vice Presidents shall appoint committees to examine the articles that may be offered at the annual exhibitions, and to judge between competitors and award prizes.

16. Each regular member, upon his admission into the society, shall subscribe his name to the

Constitution and pay \$3; also, an annual tax of \$2

17. Persons wishing to become members shall be proposed to the society and voted for, and if four-fifths of the votes are in favour of the applicant, he shall be considered as admitted to membership.

18. This constitution can only be altered or amended at the regular meetings, and then only by the consent of three-fourths of the members present; and in no case shall it be altered or amended unless there are at least twenty members present.

To the Editor of the American Farmer.

CUT WORM AND CORN CULTIVATION —ROTATION OF CROPS.

In reply to the enquiry of D. Minor, Esq. I can inform him that for ten years past, I have invariably planted corn upon wheat stubble, and have never in a single instance, been materially injured by the cut worm. In the year 1816, when there was a greater failure of the corn crop from the ravages of the worm, than ever happened within my recollection, my crop was but slightly injured: If Mr. Minor will break up his stubble land in the fall and winter, and plant his corn early, he will incur but little risk from the cut worm. There certainly are objections to throwing three grain crops together. The second crop of wheat will not be very good: it will be reduced in comparison with the crop succeeding clover, in the ratio of twenty five to fifteen; but the corn crop will be certain, is easily cultivated, and more productive than from any other rotation; and the land when suffered to lie two years in grass, will be found not only to have recovered all its vigor, but to have advanced in improvement.

My experience leads me to prefer a five years rotation in the following order:—Wheat—corn—wheat—clover—clover. The second crop of clover after having been grazed or mown to be fallowed.—As cultivating an entire field in corn, gives an unnecessary quantity of that exhausting crop, I would advise putting part of the field (which in the foregoing rotation is designed for corn) in oats or spring barley. A portion of the corn may also be succeeded by rye. Barley obtained from Mr. Caleb Kirk, is found to answer in this county.

CORNHILL.

Fauquier, Va. July 2d, 1821.

FOR THE AMERICAN FARMER.

CUT WORM BANISHED FROM CORN FIELDS BY PREVIOUS WHEAT CROPS —INFORMATION SOLICITED ON RO- TATIONS OF CROPS?

Wood Laven, Orange, Va. July 28th, 1821.

MR. SKINNER,—Permit me if you please through the medium of the American Farmer, to offer my acknowledgements, to the gentlemen who have with so much courtesy, and intelligence, taken notice in the American Farmer of the 6th, 13th, and 20th of July, of my communication, on the subject of the cut worm, and the

means of banishing it from the corn field, by a proper rotation of crops. The united experience of these gentlemen seems conclusively to settle the point, that we have nothing to fear from these destructive insects, in a rotation, in which corn is made to follow Wheat. This sir, is an important fact, and irresistibly points to the necessity of making it the basis of every good rotation. But as with this basis, the rotation is susceptible of many modifications, I trust I shall be pardoned, in endeavoring to elicit further information on the subject. And to remove at once all misconception, it may be proper to state, that the rotation, which I am in pursuit of, is the one, that is best adapted to a soil, situation &c. where wheat is the staple crop, where tobacco is excluded, and where it is no object, to grow more corn, than is sufficient for the use of the farm.

From Mr. Turner, I should be much pleased, to receive some further details on the rotation he has adopted. He has however fallen into an error, in supposing it to be the one which I had suggested; mine was Wheat, Corn, Wheat, Clover, Clover, Clover. Two objections, present themselves to this course. The first that the three grain crops, are thrown together, in succession. The second that the field lies too long in clover, and from my experience, of the present year, will be left naked and bare of vegetation, the third year, by the depredations of the worm. His course being that of wheat, corn, fallow, wheat, clover and clover, obviates it is true, both of these objections. But is it not liable to two others, perhaps, equally as strong? The first is the naked situation in which the field is left in fallow, after corn, subject to the washing rains of winter and spring, and exposed while in this naked state, too much to the influence of the sun, at the commencement of summer. The second objection is, the increase of team, which it will be necessary to keep on the farm to accomplish the fallowing, for wheat, of two fields instead of one. True, the produce from the extra field fallowed for wheat, will be greater, than that from the corn land, but will its excess pay for the additional labour, and expense. Here the proportion between a fallow crop, and corn land in wheat, rarely ever exceeds one fourth, or 25 pr. cent, in favor of the fallow, and they are frequently equal. If these objections can be obviated, Mr. Turner's course, is unquestionably the best.

From my early friend Mr. Marshall, I should be gratified to learn the details, and the success of his eight field system. Time, will now have enabled him, to test its merits, and to resolve some doubts which I had as to its success, and which will be hereafter mentioned. I well recollect the communication, which he alludes to as having made to the Agricultural Society of Virginia in 1818; I considered it at the time, as the ablest analysis of a rotation of crops, that I had ever seen, and I have long wished to see it embodied in the pages of the American Farmer, and I trust Mr. Editor, that he will oblige your many readers, so far as to furnish you with a copy for publication. I speak of the Rotation as preferred by him from memory alone, and may therefore fall into some error respecting it, my impression however is, that the modification

of the eight years rotation, which he considered as best, was that which places five eighths of the land in annual cultivation. Four fields in wheat all fallowed, and one in corn, assuming as I presume, the following rotation, wheat, corn, wheat, clover, wheat, clover, wheat, clover. The objection which strikes me as most potent to this course, is that there is too small a proportion of the land in corn for the support of the farm. It will be recollected that one half of the farm comes under an annual fallow. To accomplish this with any certainty an immense force in horses, or other teams must be kept, and in the long and frequent droughts of our summers, disappointment I should suppose, must frequently ensue, be the force what it may. The expense of supporting these teams, must be great. From the corn house, (too much I confess, the resource with our farmers here) they can derive none, as this crop according to my idea of the matter, would be inadequate to furnish bread corn, and enough to fatten hogs. On the small grain crop then, of some sort, must be their dependence. Does this consist of wheat, rye, or oats, or of all conjointly? And what proportion of the land seeded in small grain, does it take to support the teams? Details on these points and others connected with the system are respectfully solicited, and will I am persuaded be received with much general satisfaction.—To give to them the greater point, let the size of the farm be stated, the number of hands requisite to cultivate it, the period at which the fallowing is generally commenced, whether it is accomplished in whole or in part, by one or more plowings, the quantum of team necessary, &c. &c. &c. It is an object of much importance on all farms, to equalize the labour of the year, as much as possible. Is not this system liable to some objection on this score, in throwing too much labour into the harvest time.

I cannot close this communication, Mr. Editor, without reciprocating my congratulations with you on the facility which your valuable paper affords, to distant agriculturists, for an interchange of opinions on subjects interesting to the agriculture of our country, and I trust, the time is rapidly approaching, when the volumes of the "American Farmer," shall be deemed an indispensable requisite to the library of every intelligent Farmer.

Respectfully, your most obedient
DABNEY MINOR.

FROM THE SOUTHERN PATRIOT.

Charleston, April 13.

The subject of Agriculture, on which our correspondent, "A Cotton Planter," has at different times, in this journal employed his pen with so much practical good sense, and solid information, we should be happy to see engage more of the attention in a public manner of those citizens of South-Carolina, who are familiar with its details, and capable of illustrating its principles. There is one branch of the subject of our correspondent's communication this evening which cannot be too frequently or forcibly dwell upon—to wit: The necessity of the establishment of Agricultural Societies.—We shall be proud at all times to co-operate with him in his endeavours to exhibit the utility of such associations. The backwardness of the State of South Carolina in this respect is almost a reproach to her. Our Sister States are far in advance of us in this path of improvement. Surely there can exist no necessity to prove, by elaborate

reasoning, the necessity of such institutions, when it will be admitted by all that through their means, the emulation of Agriculturists is best excited by the distribution of premiums; when it is allowed that the ingenuity of the experimentalist is aided from the light furnished by others engaged in similar pursuits, and affiliated for mutual improvement; when it is granted that such societies are the permanent depositories of all improvements in the arts and the science of Agriculture; when it is so well known that they present the best means for embodying and preserving the results of all experiments for future instruction; when, in fine, it is so evident that by a chain of such institutions no individual improvement can take place but it speedily becomes a common benefit; and that the inventive resources of many hundred minds, engaged in a kindred occupation, admit of being brought out more effectually by their union than by their disconnected and detached efforts. At the present period of depression and distress, too, whilst Agriculture labors, with every other interest of the country, the best means of restoring the too rapidly exhausted powers of the soil, the true modes of obtaining the greatest quantity of produce with the least consumption of time and labour, ought to constitute objects of constant ambition and solicitude, as we are certain they are of solid and permanent interest to the Southern Planter.

"The more I am acquainted with Agricultural affairs, the better I am pleased with them; in so much that I can no where find so great satisfaction as in those innocent and useful pursuits."—WASINGTON.

MR. EDITOR,

It must be a matter of deep concern, nay, of mortification, among many of the friends of agriculture in our State, to perceive the apathy and indifference which exists among us, to promote an improvement in that branch of science, so important to our interests, and so useful and necessary to the support and happiness of man. While in most of our sister states, we behold every exertion made to excite and keep alive a spirit of emulation among the cultivators of the soil, by the formation of numerous societies, annually distributing premiums to their practical farmers. With few exceptions, we have not any thing of this kind in our state to produce that competition, so essentially necessary to the improvement of our system of agriculture. If we had in each of our Districts a Farmers Society, annually awarding a few premiums for the greatest crops of Rice, Cotton, Corn and Wheat, the product of a few acres of land, it requires no spirit of prophecy to predict a gradual and permanent increase of such crops throughout the state generally. Without any reference to the great increase of crops which have been effected by that emulation, resulting from the formation of Agricultural Societies in Europe within the last thirty years; we need no further evidence of their usefulness in producing great and essential benefit to the agriculture of any country, than the happy effects which have uniformly followed the creation of them in our Sister States. To confine their utility to the mere increase of crops, would be little indeed, compared to the many and useful results connected with their formation. The best mode of reclaiming old fields, exhausted by continued culture—reclaiming marsh and other swamp lands—an improvement in our stock generally, and the procuring for them better food, by the cultivation of grasses—together with the most approved method of cultivating our great staple articles, may be mentioned as a few results which might be confidently expected to follow their formation. The author of *Arator* justly remarks, "a patient must know that he is sick before he will take physic." Too many of us planters cannot admit that our system of agriculture requires improvement, when the number of old fields, totally worn out from constant cropping, or exposed to the fatal effects of close grazing, too fully prove the errors of our present system. If an enquiry be made of the product of all lands planted in Rice, Cotton and Corn, in our state, I am fully satisfied the result will be such as would fall far short of such crops as even a moderate estimation would have expected. Let most plan-

ters institute a slight inquiry in his own neighborhood, and for one who makes a good crop *per acre*, he will see many who make annually bad crops for the land planted. It must follow from this, that we either plant too much land, or do not cultivate the land to the best advantage; and very often, both these causes exist, to produce short crops independent of our seasons.

Upon no one article which we cultivate, have we attained that perfection which can induce any planter to conclude the system of cultivation perfect—hence, so often results a disappointment to the hopes of the Farmer, which is in many instances justly attributed to his want of knowledge in some essential point. To illustrate this, I shall only notice the serious losses sustained some years since, from many Planters floughing their Rice Fields with water, so salt, as not only to destroy the growing crop, but to injure the land for some seasons after. Much praise is justly due to the members of the Society established in Charleston in 1785, for their early exertions to convince our Planters of the importance and utility of Agricultural Associations, and though, as yet, their efforts have not been completely successful, may we not hope from the intelligence and wealth, which exist among its members, some new attempts will be made to rouse our Farmers to the many important results which would follow—the judicious distribution of agricultural premiums.

A few well conducted experiments in various parts of the State, repeated for three years, would bid fair to ascertain with much certainty the mode of cultivation most proper, in regard to the three great staples of our State—Cotton, Rice and Corn. At present, much diversity of opinion exists among our best Planters of the same District upon the following heads:—Upon the culture of Cotton, many approve of much closer planting than others; some prefer early thinning, while others contend for this part of the Cotton culture, to be deferred, to a much later period. While some advocate topping cotton, others disapprove of this plan; and among those who do practice it, much difference of opinion prevails as to the proper time. Upon the culture of rice in river swamps, where I believe our system of agriculture to be most perfect; our first rate planters do not agree as respects the distance that the rows should be apart—the quantity of seed, most proper for the acre, and the precise mode, time, and proper depth, to be used in the sowings of the rice during its growth. Without pretending to have much practical information upon the article of Rice, I am induced to call the attention of those interested in its culture to the most proper time to commence the harvest of this very important grain. It appears to be the received opinion now, among those most acquainted with the culture of all the grain crops, that much loss is sustained in the quantity, and also great injury in the quality of the article, by waiting till the grain be dead ripe. All rice planters know the serious loss by the shelling of the rice, when over ripe, and I am much induced to think that too little attention has been paid to this subject; and that generally the harvest of the rice crops are delayed longer, than they should be. It would be well for some planter to make a comparative trial of the quality and quantity from an acre; cut before the grain be completely ripe, and another, after the grain be hard. Much interesting information relative to the right time for the harvest of the grain crops, will be found in the 47th number of the second volume of that valuable Agricultural Journal, the *American Farmer*, by Mr. John C. Brush, whose reasonings, though principally intended for the wheat crop, are well worthy the attention of the rice planter.

I have reason to believe that an experienced Rice Planter of Combahoe, (Nat. Heyward, Esq.) many years since, instituted a number of experiments relative to the culture of this valuable grain. But from that *fashion* which prevails in our state, of not making public agricultural information, the advantages resulting from them, and no doubt many other important facts, in various parts of our State connected with agriculture, are confined to a small circle of

planters. In the culture of corn, the same division of sentiment occurs, while some contend for two or more stalks in each hill, others prefer a closer distance and only one plant in each. Many farmers of the North, as well as those of our Southern states, much extol the practice of cutting off the tops of the Indian corn, some time before harvest, while others deprecate this plan as highly injurious. *It would be greatly desirable, if any corn planter, possessing decided information relative to this contested point, would favour his Brethren with the facts either for or against this Practice.* Although the results of some of my experiments, are in favour of topping corn, they have not been so decisive as to satisfy my mind, of its propriety upon a large scale.

These few remarks are sufficient to convince all planters, that much yet remains to bring our mode of culture to that state, to enable us to reap the greatest crops from our lands—and I flatter myself if an enquiry be made of the progress of agriculture, either in Europe, or in our sister states, it will be found to have increased, with distribution of premiums, and the diffusion of agricultural knowledge so necessarily connected with the formation of *Agricultural Societies*.

A COTTON PLANTER.

TO THE EDITOR OF THE AMERICAN FARMER.

FLAX MACHINE.

Brandywine, 7th July, 1821.

MY FRIEND,

When I sent the Thorn seed to Sir John Sinclair, I made some inquiry of him concerning the Flax Machine, lately introduced into this country from England, by the Agricultural Society of Philadelphia, and which I had recently seen tried, having been present at a meeting convened for that purpose in their Society's Hall: Sir John writes to me from Edinburgh, under date of the 1st of June, 1821 "as follows:—*With respect to the Machine for preparing Flax, without water rotting, it was originally thought to have been a very great discovery; but it is found to be too expensive for general use, and consequently it has not been employed to any great extent; nor does it seem to be so necessary where there is so favourable and so regular a climate as in many of the American States.*"

I give you these remarks of Sir John's about the Flax Machine for publication, that too high expectations may not be created, or individuals be led into heavy expenses without a reasonable prospect of indemnity. I must confess that when I saw the Machine in operation at Philadelphia, a doubt was left upon my mind as to the practicability of bringing it into general use; I feared that it would be too complicated to be beneficially employed by persons who were not pretty good mechanics—and then the first cost would be too heavy for most persons to encounter.

Yet I think our Agricultural Societies do well in disregarding the expense of testing such improvements in our implements of husbandry; for among our mechanics, there is a predominating portion of ingenuity, that will make the best of a principle, by simplifying the means of attaining a desired object. And as the Philadelphia Society have offered a premium for a Flax Machine, of the best construction, to be presented by the first of January next, I think the usefulness of such machines in this country is in a fair way of being ascertained.

I remain very respectfully,

thy friend,

CALEB KIRK.

J. S. SKINNER.

MILLET.

To the Editor of the American Farmer:

SIR—I have noticed with great satisfaction, Dr. Coleman's experiments on MILLET, but am at a loss (as well as many others who read your excellent paper) to know the *kind or species* he is cultivating.

I sowed about an acre and a half of good ground last year with this grain; and obtained from two pecks, about twenty-five bushels of seed, with a large quantity of straw, which was preferred by horses as well as cows, to the best timothy hay. As a grass, therefore, to be used either dry or green, I think this species of Millet must be invaluable. It may be sown early in May, and in sixty or ninety days it will be ready for the scythe; affording a good crop of hay, preferable to clover, perhaps, or any other grass we have seen use here.

But there is now growing in the garden of my friend Dr. Clendinning, of this city, another and a better species of this excellent grain or corn. He does not know from where he got the seed; but suspects its accidental importation from Smyrna. Dr. C.'s plants resemble mine in their general aspect, particularly in their seed, jointed-stems, blades, &c. but they are two perfectly distinct species.

By referring to the article PANICUM, in Rees's Cyclopaedia, you will find that following the method of Linnaeus, the author has divided this genus into two classes, the *spiked* and *panicled*. To the first of these divisions, I referred the kind which I cultivated last summer. But we must refer the kind which Dr. C. has growing, to the second or *panicled*.

We might with some propriety, call one of these kinds the small and the other the large Millet. The small Millet will be found best for hay, I expect, the large for grain.

The large, or *panicled* Millet (*Panicum Millaceum*) attains in rich ground, fully the height of six or eight feet—The stem as thick as the little finger—leaves or blades one and a half inches broad, and measuring upwards of two feet in length—altogether resembling the leaves or blades of our maize or Indian corn. The head twelve to eighteen inches long, subdivided into many short sessile branches, bearing an immense number of seed.

The *spiked*, or small Millet, (most probably the *panicum italicum*) grows more like our common wheat. The stems being about three feet high—leaves of same form as the large Millet, but small in proportion—spikes, or heads bearing seed from three to five inches long. As seed bearers, both of these species of Millet, are truly astonishing: And in them we possess an article of cheap food, equally delicious, if not more so, than either rice or corn.

Respectfully,

Your obedient servant,

JAMES SMITH.

Baltimore, 4th August, 1821.

TURNIPS—how to protect from Fly; OATS in the straw contrasted with Hay as Forage.

TO THE EDITOR OF THE AMERICAN FARMER.

Washington, 3d August, 1821.

Sir—I sowed five acres in turnips, but they have been almost all destroyed by the fly or burnt up. A neighbor of mine whom I deem the first of farmers, has saved his turnips by working the earth up to the young sprouts; whereby, first, the roots were made more distant from the great heat, and secondly the earth sprinkled on the young plants, prevented the fly from eating—the same effect was produced on cucumber and melon plants when young. This hint I give in haste, as many persons have not yet sown their turnips.

Oats cut with the straw and put in the crib, is better food for horses than hay, and one ton will go as far as two tons of hay—the former is all eat, and the latter being picked out by horses from the racks, is half lost. Oats with the straw costs 50 cents per ton, and hay costs one dollar per ton. If, therefore, I sell my hay and buy oats undressed with the straw, I benefit thirty dollars in forty.

I trust that these two suggestions, will compensate for my neglect of agricultural subjects for some time—I mean to destroy my racks—dry leaves and corn stalks must be my litter in the winter—Verbum sapient.

10th August, 1821.

I wrote you a few lines to inform you of the ravages of the fly among my turnips, &c.—About a week ago I despaired of my crop, but threw on the rows, burnt clods, and now to my joy, find a most agreeable change—many that I thought dead have revived—The fly has disappeared and new leaves pushed out, although my ground is very dry for want of rain. I mention this in haste, that others may save their turnips.—If we have not rain soon our corn will be all destroyed. I rely on turnips and straw to preserve my cattle. If others make the same experiment and are successful, we may have found a preventive against the fly, whilst we add a good manure.

Your's,

T. LAW.

SOME OBSERVATIONS ON THE Hessian Fly;

WRITTEN IN THE YEAR 1797, BY DR. ISAAC CHAPMAN.

Original read before the Agricultural Society of Bucks County, 14th August, 1820.—Forwarded to the Philadelphia Agricultural Society, and ordered to be published in the National Recorder.

That insect first appeared in Bucks county in the spring of the year 1786, upon the banks of the Delaware opposite Trenton, having crossed the river from N. Jersey, where it had the preceding year destroyed the greatest part of the wheat, but in Bucks not much damage was observed except in a few fields opposite Trenton; after harvest they spread over several townships, and the farmers having sown their wheat the latter end of August and beginning of September, the young plants in two or three weeks after appearing above ground began to die, and when winter came on instead of the ground being spread over with verdure, as it used to be, in many fields the young plants were nearly all destroyed by the insect.

In 1787 the wheat was in several townships, the greatest part destroyed. After harvest they spread to a great extent, and did great injury to the young wheat before the frosts came on.

In 1788, in the beginning of May and until the 15th or 20th of the same, many fields appeared very promising, but then the growth of the wheat began to be at a stand, and after some days withered and died; many farmers seeing it thus withering away, turned their creatures into the wheat fields so that at harvest but little had this year come to maturity. After harvest they spread nearly all over the county, and in to some parts of the adjacent counties of Philadelphia and Montgomery.

The farmers observing in the two preceding harvests, the wheat that had been sown early in the season to be more damaged than that sown later, this year generally sowed later in the season than before, and being much discouraged by the crops of the two preceding years failing, put in but little ground with wheat, but chiefly sowed rye, which the fly, as yet damaged very little; and the yellow bearded wheat being introduced, was generally sown on the best grounds well manured. This wheat was brought from Long Island or New York, to which place it was introduced from the southern states, and was

said to be proof against the insect, from its having a very hard stalk, and beginning to grow earlier in the spring than that variety they had been accustomed to sow.

1789. The fall and winter 1788 and the spring of 1789, being very favourable, the wheat fields appeared very promising; the insects not doing much damage, except in some low, warm and sheltered situations; and the harvest though not extraordinary, was good when compared to that of preceding years.

1790. In the autumn of 1789 the wheat was sown very late, and the winter being unfavourable for winter grain, in the spring of 1790 it made a very unpromising appearance, and the yellow bearded wheat was found not to be proof against the insect: the harvests in general were light.

This insect was first discovered on or near Long Island, in the state of New York, from whence they spread rapidly, and was in the year 1797, found west of the Alleghany mountains. From their apparent progress through the country, they advanced about 30 miles in one summer.

Having so marked the progress of this insect, and their destructive operations upon the wheat, I will go into a more particular account of them, their economy and destructive process.

Their principal emigrations appear to be after harvest, in August and the beginning of September. The first year they appear in no great numbers, and scattering; but the next year they advance in great numbers, and with the increase of those that came the preceding year, make great destruction. It was in the second year of their appearance in my neighbourhood, that I began to be particular in observing them, and from notes taken that and succeeding years, I draw this account.

As this, like most species of flies, undergoes several transformations before they arrive to a perfect state, I now state such observations as I have made upon them in their different stages, until they arrive to the fly.—First, of the egg, then of the larva or caterpillar, then the aurelia or chrysalis, and lastly, when they arrive to the mature state of a fly.

1st. The eggs. These are deposited by the parent fly on the leaf or blade of the wheat, at different times in the spring; the latter end of April and beginning of May, they may be seen laying their eggs on the leaves that have grown that season; they deposit them in the small creases that are longitudinal in the leaf. The egg is scarce discernible with the naked eye, but with a microscope it appears oblong, both ends of the same size, and of a beautiful glossy pale red, a little inclining to yellow. After a few days more, or fewer, as they are warmer or colder, the egg hatches, and the young caterpillar appears.

2d. The larva or caterpillar. It is in this state that the insect does all its mischief: when the caterpillar first appears out of the egg, it retains the pale red colour of the egg, is wrinkled, and has a considerable degree of agility: as soon as hatched it creeps down the leaf until it comes to where it joins the head or main stalk of the plant; if the stalk has advanced much, so that the pedicle of the leaf forms a sheath,

and continues its course until it reaches the bottom of the sheath; here it fixes to the stalk, if shot up, if not, to the head of the plant where the pedicle of the leaf joins, with its head downwards, and with its teeth it perforates into a sap vessel, from which it draws its nourishment. Having thus placed itself into a proper situation it never alters its position, until it undergoes the remaining transformations. By the sap it is nourished, its body enlarges, loses its wrinkled appearance, changes to a paler colour, becomes plump and hard, so as to resist the pressure of the stalk and sheath, and as it daily increases in bulk, it presses with such force against the stalk as to print its shape in it, and thus prevents the sap from passing the side of the stalk against which it is fixed: one insect thus placed seldom destroys the plant, but when two or three are fixed in this manner round the stalk or head of a plant, they certainly destroy it; not by the nourishment they draw from the sap, or eating any part of the plant, but by the pressure they make, stopping the ascent of sap, and thus cutting off the nourishment of the plant. They are frequently found in the second sheath from the ground, after the stalk is shot up; but when this is the case, the eggs have been deposited late in the season, and the stalk has acquired such a degree of hardness before the caterpillar begins to press against it, that very little impression is made on the stalk, and little or no damage sustained. And here it may be worth our notice to see how muzzling instinct operates on these little animals, scarce visible to the naked eye; the minute they are excluded from the eggs, they are directed to a proper situation, and invariably place themselves with their heads to the root of the plant, that their nourishment may not be cut off in stopping the ascent of the sap, whereby they would perish, as happens to those that are placed uppermost on the stalk when a great number are found together: sometimes twenty or thirty being found in the same sheath, the upper ones frequently die for want of sap, and very few thus situated arrived to their proper size.

They continue growing in the caterpillar state between four and five weeks, towards the latter part of which time they change from a light colour to somewhat of a brownish cast, and then to a dark brown, the outward coat of the caterpillar becoming a hard shell or covering for the chrysalis, which change takes place the latter end of May or beginning of June.

5d. The chrysalis state. In this state they receive no nourishment, and continue without any apparent outward alteration about four or five weeks; and in this time the last transformation takes place, and the insect appears in its most perfect state of a fly, which perforates the case of the chrysalis, and makes its appearance in the latter end of July or beginning of August.

4th. The fly is small, has long slender legs, wings long and single, and when they join to the body or thorax, taper almost to a point; towards the other extremity they expand, and at the end form nearly a semicircle; the head and thorax are very small in comparison with

the abdomen, which is large, particularly in the females—and, when viewed with a microscope, there appears round the abdomen many beautiful circles of a pale red, inclining a little to a yellow colour.

In the last state the insect is very active, moving from place to place with great agility; and in the latter part of August and beginning of September their principal migrations take place—those vegetables on which they deposit their eggs, being scarce, they emigrate in search of greater plenty.

They now copulate, and soon after begin to deposit their eggs—and, as nearly as I could discover, this process is finished by the 15th or 18th of September, though some of them changing from the chrysalis state later than others, will lay their eggs later in proportion.

Now, having traced the insects through one generation, which lasts from the latter end of April to the 15th or 20th of September, I will carry my remarks through another generation, which being done, I shall have traced them through their various transformation and economy for the period of one year.

(To be concluded.)

Cashmere Downy Goat.

UPON THE IMPORTATION INTO FRANCE, OF THE CASHMERE DOWNY GOAT.

[Extract from a memoir read by Tessier, inspector general of sheep, before the Royal Academy of Sciences, Sept. 13th, 1819.

Translated for the Boston Weekly Messenger.

"The sight of these shawls, which are brought from Asia, which spread all over Europe, make a part in the presents of the sovereigns of the East, and adorn the head and waist of the rich inhabitants of those countries, gave rise to the question among naturalists, what species of animal produced the material from which such precious stuffs were made. Travellers gave no satisfactory information upon this subject. The general opinion was, that cashmires were produced from a goat, but the particular species was not determined.—The importation which has just been made, clears up, in part, this difficulty, for these animals produce a down exactly like that of which the most rare shawls are made; I say in part, because it is possible that wool may be also employed for this purpose, or that different kinds of the goat may unite to bring the manufacture to perfection. I shall describe particularly those which I have seen upon their arrival at two of our Mediterranean ports.

"Their usual height is about twenty-five inches from the ground to the top of the back, and the length from the beginning of the tail to the head, three feet. Almost all have horns, which are straight black, and for the most part round; those of some males' head at the extremity. The fleeces of the males, as well as females, are thick furry, white in the majority of individuals, some brown or black, several spotted. They are formed of long hard hairs which cover the legs in part, and a very soft down. The latter

is fine in proportion as the hair is long—the quality of one may be known from the other. This down grows near the skin, from which it separates and forms tufts, which can be drawn away by a comb or by the hand. Except in the case of an absolute prohibition, it appears as if our manufacturers would have no interest in importing these downy cashmere goats into France, for the material may be procured in the way of commerce; it would be sufficient for them to endeavor to imitate the stuff which bears this name. M. Ternaux, so well known by his beautiful establishments was not of this opinion. He had received by the way of Russia down enough to make some shawls; his success gave him the idea of procuring the animals on whose body nature had placed this down. The undertaking was not an easy one. He found in M. Jaubert, master of requests, and professor of the Turkish language, a man of zeal and intelligence, who was not to be repulsed by obstacles, and who was much attached to his country. This gentleman had already travelled in the Levant and could make himself understood among the different nations. He was willing to undertake the expedition. In order to obtain the protection of government, Mr. Ternaux presented him to the Duke of Richelieu, then minister of foreign affairs. This minister who acknowledged the utility of the project made a contract with Ternaux and Jaubert, in the name of the king by which Ternaux was to receive a premium of encouragement if the expedition succeeded. The government was to take a hundred goats at a high price. In consequence of this Jaubert left Paris in the month of April 1818, recommended by the Duke de Richelieu to the notice of the Emperor of Russia. This sovereign gave orders in his dominions, that the French traveller should be furnished with all the facilities which he needed.—Jaubert went first by Odessa, Tanagerok and Astracan to the camp of General Jermoloff, under the Caucasus taking every where information from the Boukars, respecting the Kirghiz and the Armenians who frequent and inhabit the last of these cities. He was informed that there existed among the numerous hordes of Kirghiz, a wandering people who come into Boukaria, on the borders of the Oural, a species of goat which was almost always of a dazzling whiteness, and which bore every year in the month of June a remarkable fleece. The samples which were shown him convinced him of the conformity of this down with that which came into France by the way of Russia. This discovery was the more interesting to him as it might save his time, and a troublesome journey in crossing into Thibet, by Persia and Cashmere. He was not deceived, and in some hundred versts from the Voiga, in the middle of the Steppes, which separate Astracan from Oremburg, he found thick tufts of the down which convinced him, that he would not find it necessary to go much farther. He had also remarked that they gave them the name of Thibet Goats, in the language of the country, when they spoke of them. He then made his purchases, buying different lots among the Kirghiz of the horde called Cara-Agaghi (the black tree) among the Kirghiz of the horde called Kuisaks, in all 1289 beasts. He directed his

troop towards Tsaritza, where he passed the river Wolga. The season became severe, and the mortality among the goats was very great. He had formed a plan of embarking them at Tongarock, but the sea of Azof was frozen. He was obliged to go along the coast with them to Theodosia or Caffa. He arrived there the 24th of December, after having already lost 238 of his animals. The 14th of February he sent in a Russian vessel, the only one he could procure. 566, together with some Astracan sheep, under the care of a French supercargo. The vessel arrived at Marseilles towards the month of April. Jaubert had preferred not to come until he could bring the second troop, which he did not wish to leave behind.

"It results from the experiment of Jaubert and Ternaux, that from 1289 goats bought among the Kirghiz, deducting all the losses which have taken place, there are at present in France 400 downy goats of Cashmere.

FOR THE AMERICAN FARMER.

THE PEERAGE OF ENGLAND.

"Stuck o'er with titles, or hung round with strings,
That thou may'st be, by kings or whores of kings."
POPE.

In your paper of the 13th, there is inserted an account of the peerage of England, amounting to several hundreds, whose descent is reckoned, in a number of instances, to ancestors of many ages past, as far as the days of William 1st, the Norman conqueror of the kingdom.—This detail of vanity has, however, as much falsehood as imposition in it; and, it may not be amiss for the American reader, or any one who bears the figure, and breathes the spirit of a human being, to be told the truth—that they may know at once their own equal value in the creation, and the worthlessness of those who have endeavoured to gild their own names with the insolent titles of nobility—and have abused the rest of mankind with debasing appellations of vassalage, villainage and slavery.

The heads of bands of freebooters, in every instance—the robbers and spoilers of people and countries, were *they* who assumed these sounding names and titles. And who are they who claim honor of being descended from thieves and murderers? William the conqueror, is the title of a bastard sprung from a barbarous woman, the chief of mongrel bands of sea and land robbers, who possessed themselves by force of a part of France—became a duke, and his spurious descendant, by like force, made himself king of England. Was he such who is the acknowledged head of this boasted nobility?—and what are then the bearers of the names of his vassals, who now tell the world, that they are as old as he; which, in their language, means nearly as good? The last need not be denied; but, though they are the sons of sons of men, who lived in his times, as every one now living is; yet it may be boldly said, that hardly any of these claimants of nobility can show that their fathers were even the title bearers, then, or for many ages after.—The continual wars and rebellions of the barons

of former days, destroyed their persons and families—and transferred their confiscated estates and titles to the supporters of the strongest party. These new earls, dukes, &c. soon became, in their turn, the victims of new changes; and, after the destroying vicissitudes of York and Lancaster successions, scarcely an old noble remained. Henry 8th accomplished the ruin of the rest; and still, as new men appeared with the old titles, the convulsions of religious civil wars, and the blasting lewdness that came with the restoration of monarchy, swept away the last covers. But, from that dissolute Charles 2d, was generated a race which took possession of the old titles "Bedford and Exeter, Warwick and Talbot," Monmouth, Richmond, St. Albans, Grafton, Buccleugh, Deloraine, and Southampton, dukes and earls—who, in their flowing caps may be freshly remembered—as the sons of Lucy Waters, Quirionville, Nelly Gwynn, B. Villiers, &c. &c. A hardy, that, joined with all the sycophants and sellers of their country to this day patented, makes up this noble list of English Peers under now, old and revived titles, with the pretence, "that those whom they call fathers did beget them."

Baltimore, July 26, 1821.

To destroy Ticks on Sheep.—Part the wool along the back and down each side of the neck, and sprinkle snuff therein: it will kill the ticks in the course of three or four days. This operation ought to be repeated in ten or twelve days, to kill off the next crop that will hatch out. This operation, performed on the lambs after the old sheep are shorn of their fleeces, will expel the vermin from the flock.

To preserve Apples through the season.—Gather them about noon, in the latter part of September or beginning of October; spread them in a chamber or garret, where they may remain till about the last of November. Then remove them into casks or boxes in the cellar. With this management, they will keep to the last of May, so well that not one in fifty will rot.

Directions to preserve Cherries, Plums, &c. without sugar.—Fill large-necked bottles with the fruit, put the corks in loosely, let them be put into a kettle of water, increase the heat to scalding for about three quarters of an hour: when of proper degree, keep it at the same half an hour longer, fill up with boiling water, cork down tight, lay them on the side till wanted for use.

To preserve Turnips from Insects.—First—To a quantity of Turnip seed, add one ounce of brimstone finely powdered; put them into a bottle large enough to afford room to shake them well together every day for four or five days previous to sowing, keeping it well corked. Secondly. Take such a quantity of clover leaves, as when bruised, will yield juice sufficient to cover the turnip seed you intend to sow, in which let it soak about twelve hours: the next day mix it with the bruised leaves, and sow all together.

THE FARMER.

BALTIMORE, FRIDAY, AUGUST 17, 1821.

PRICES CURRENT.

Flour from the wagons, \$5 12½—Whiskey from do. 25 cts—Wheat, white, \$1 a 105—Red, 95 a 100—Corn, 38 a 40 cts—Oats, 18 a 20—Rye, 40—Hay, 12 a 14—Live Cattle, \$5 a 6 50—Codfish, per quintal, wholesale, \$3, retail 3 50—N. England Beans per bushel \$1 12½—ditto Peas, 75 cts—Plaster in stone \$6 per ton—do, ground, \$1 35 per barrel, 33 cts per bushel, \$8 per ton—New-Orleans sugar, \$9 to \$12 50—Muscovado, do, \$9 a \$12—American White Lead, \$12 50—Ground do, 13 a 14—Linseed Oil, 75 cts—Feathers, 40 a 45 cts—Shad, new, \$6—Herrings, \$2 a \$3 25, declining—Fine Salt, 55 cts per bushel—Ground Alum do, 35 a 60—St Ubes, 60—Cadiz, 50 a 55—Turk's Island, 72—Beef, 8 to 10 cts. Hams, 10 a 12 cts—Middlings, 12 cents—Butter, 25 cts—Peas, 50 cents per bushel—Eggs, 12½ cts—Cheese, 8 a 10 cts per pound—Tar \$2 12½—Turpentine, soft, 2½—Cargo prices 12½—Hard, 1 50 to 1 63½—Pitch 2 a 2 25—Rosin, common, \$1 37½ a 1 50—Varnish, 25 cents—Spirits Turpentine, 33 cents per gal. Virginia Tobacco—A few hogheads Virginia Tobacco of inferior quality at \$6 a 6 50—2 hds. do. at 6 50 a 8. Maryland Tobacco—same as last week—Fine ditto, scarce, but much in demand.

Early & Late Cabbage Seeds,

To be sown in the fall, particularly in the Southern States.

J. P. CASEY, Seedsman,

No. 2, HANOVER-STREET,

Next door to Barnum's Hotel, has received from London, the following SEEDS, all of the best quality.

Early Screw Cabbage Seed

Do Washington do

Do Salisbury do

Do Wellington do

Do Smyrna do

Do Coberg do

Do George do

Do York do

Do Sugar Loaf do

Do Penton do

Do Battersea do

Late Battersea do

Do York do

Do Flat Dutch do

Do Drum Head do

Do Brunswick do

Do Amsterdam do

Do Large English do

Do Imperial Russia do

Do 1000 Headed do

Do Turnip Rooted do

Do Yellow Savoy do

Do Green & White Savoy do

Do German Greens do

Do Br. & Green Broccolo do

Do Brussels Sprouts do

Do Coleworts do

Early and Late London and Dutch Cauliflower do

Do Purple, Green and White Broccoli do

Do Cape and Sprouting do

The first 19 sorts bear large hard white heads, and

succeed each other so as to have a succession of Cabbage all the year; some of the late sorts are used for feeding cattle.

In addition to the above, CASEY has received a further supply of Seeds, including early George, Wellington and Sour Croute Cabbage. The first 19 sorts will be sold at 37½ cents per oz. and the other sorts from 12½ cents to 160. Gardeners and retailers will be allowed a considerable discount for cash.—The earliest sorts are marked first on the list, early Screw Cabbage is insured to me to come much earlier than any cabbage known in Europe.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua si bona norint
Agricolae." VIRG.

VOL. III.

BALTIMORE, FRIDAY, AUGUST 24, 1821.

NUM. 22.

AGRICULTURE.

AN ADDRESS,

By CHARLES FISHER, to the *Rowan Agricultural Society*, at its meeting on the 4th of July, in the town of Salisbury, North Carolina.

Gentlemen: Believing that this Society, if conducted with prudence and spirit, will be the means of doing much good among the Farmers of the county, I cannot but feel myself highly honored by the station you have assigned me. If, in the discharge of my duties, I am unable to bring to your aid much talent or long experience, I can, nevertheless, with safety promise you constant attention and unremitting zeal. We all must see the wretched condition of agriculture as it exists among us, and anxiously wish for its amelioration. But this alone is not sufficient: we must act; and to act with efficiency and success, our efforts must be made in concert. I know no plan by which this result can so well be produced as by the means of Agricultural Associations.

The benefits of such institutions in foreign countries as well as our own, have been fully realized. Writers inform us that the establishment of the board of agriculture in England, is the era, when English husbandry began to look up, and occupy that respectability to which it is entitled. At this day it has reached a high state of perfection, which has been effected principally by the means of agricultural societies.

The Northern States, being that part of our country where the population first filled up, we find them the first to throw off the habits and practices of the early settlers, and introduce a better state of things. Their lands, like ours at this time, were rapidly exhausting and becoming sterile. Reflecting men saw the necessity of a change: but as no one or two individuals, in any neighborhood, could possibly accomplish this by their single example,—agricultural associations were resorted to as the only effectual means. Successful efforts were made to bring the farmers together in societies, and to engage their minds and their feelings in a general plan of improvement; and wonderful has been the change produced in the appearance and condition of their agriculture. At this day, so evident are the advantages of agricultural societies, that they are every where coming into general sanction. We see the best farmers, and, in many instances, the most distinguished men in the nation, entering with zeal and spirit into these associations, and labouring to improve our agriculture, and exalt the farming interest of the country: men, that a few years ago, directed the destinies of this great republic, think it no disgrace now to aid in managing the concerns of a county society. Even the STATES, sensible of the importance, in a national point of view, of such institutions, have extended to them legislative support and patronage. In all the states they are incorporated, and in some of them liberally encouraged by pecuniary donations. For example, New-York, of all the states the most abounding in natural advantages, and the most magnificent in internal policy, has taken a measure in favor of her agriculture that cannot fail of producing the greatest results. Her legislature, for the purpose of encouraging agriculture, has appropriated \$20,000 to be divided (in two years) in due proportions among the agricultural societies in the various counties. By the same act, an Agricultural Board is established, to be composed of the Presidents of the different societies throughout the state, and to be held annually at

the seat of government. This Board shall annually compile a volume from the archives of the society,—1500 copies of which are to be published at the expense of the state. Here is an example worthy of imitation: but my object at present in mentioning this instance of liberality, is to show the light in which an ambitious and enlightened state to the north, views the agency of agricultural societies in advancing the great work of internal improvement. But, although New-York is the foremost in liberality, many of the other states are also pushing forward in the same race of improvement. Look to the North and to the South, and we see life and activity pervading the farming community: even in the West, in the new states, the farmers begin to turn their attention to systematic improvement. We, alone, continue lagging behind, dragging on the old way, without even a Farmer's society to excite our feelings or direct our energies. It is time that we should awaken from our slumbers of inactivity: it is time that we should arouse ourselves from this lethargic indifference, and take some measures for the improvement of agriculture in this section of the country. And what plan can we adopt, better calculated to accomplish this end, than the one that has produced such happy results in other parts of the country,—the formation of Societies among the Farmers?

One of the greatest advantages flowing from societies of this kind is, that they are the means of commencing among the farmers, at one and the same time, a general move towards systematic improvement. They, also, are the instruments of collecting into a common fund, the light and experience of many practical farmers, which is again diffused for the benefit of all. For example, by our constitution, it is made the duty of each member to apply his attention as much as may be, to the different modes of cultivation; and if, in the course of his practice, he makes any useful discoveries, or verifies any former experiments, however small, he forthwith communicates them for the public good.

Another advantage is, we not only learn useful facts from each other, in our own vicinity, but by means of the society, we collect valuable and important information from other and more remote parts of the country. We open an intercourse with like associations, and with intelligent individuals, whose lights and experience will be a desirable acquisition to us of profitable knowledge.

But another, and perhaps the most important advantage that we shall realize from this society, will be the effects it will have upon our minds and feelings. It will awaken among ourselves and our brother farmers, a spirit of emulation; it will set us to thinking and inquiring; and this, of itself, will give a spring to our moral and physical capacities. There is nothing like exciting the human mind to action—like arousing it to inquiry and reflection; give it but motives of excitement, and it will act, and will improve. For the purpose, then, of keeping alive a spirit of emulation among our farmers, we should, at stated periods, have Cattle Shows, and agricultural Exhibitions. We should encourage them by the bestowment of prizes and honorary premiums.

Having said thus much upon the advantages of agricultural societies, I will now, as briefly as possible, turn your attention to the state of agriculture as it exists among ourselves.

In looking round for the defects in our prevailing system of husbandry, one of the most striking is,—We pursue a course of cultivation that takes all from the earth, and returns nothing to it: We go on year after year, tilling our fields, without any pains to return to the earth the strength that each crop takes

from it. We completely exhaust our soil by an unvaried succession of crops; and, when it can produce no longer, we turn it out into fields, let it wash into gullies, and grow up with pines, and broom sedge, that never failing symptom of exhaustion. This is the common fate of our fields; the system that is defacing our country, and ruining our lands. How is it to be arrested?—By stopping short in our present practices, and adopting in their stead the improving plan. It cannot be expected, on an occasion like this, that all the methods of improvement now in practice should be fully detailed: neither time nor qualifications could justify me in the attempt. But I may, in a few words say, that they all come under the head of *Manuring*. That course of cultivation which takes all from the earth and returns nothing to it, must prove a defective and ruinous one: all the plans, then, of improving land, if successful, must, in some way or other go upon the principle of returning strength and activity to the earth. Manuring is the end of them all. But there are several kinds of manuring, and different methods of applying them to the earth. I believe, however, manures generally have been classed under three heads: vegetable, atmospheric, and mineral.

Vegetable manure is the decomposition of all vegetable substances: stable-yard litter, straw and other offals of our crops are, with us, the common material of manure. In our sister state Virginia, corn stalks are made great use of for that purpose.

The atmosphere that surrounds us teems with matter that affords life and nourishment to all kinds of vegetation; this is called atmospheric manure. How to extract this aliment from the air and convey it to the soil, is an important inquiry with agriculturists. The best plan yet practised, is that of enclosing, as connected with shifts of fields and rotation of crops. The principle of enclosing is, to suffer our fields to become thickly covered with rich vegetable substances, undisturbed by any kind of stock, and then, in proper season, to turn it under, where it soon rots and enriches the ground. In the northern states, the farmers regularly sow their fields down in clover, and when it reaches its perfection, plough it under. It is the opinion of some, that clover will not succeed thus far to the south; but as far as my observation goes, the opinion is entirely erroneous.

The other kind of manure spoken of is mineral, such as gypsum, lime, &c.; but these are scarce materials in our vicinity, and it would not be profitable to introduce them from a distance. Our main resource lies in the two first sorts; and to these we should direct our attention.

It is a lamentable fact, that in our part of the country, the practice of manuring lands has been miserably neglected. Our farmers seem not duly to appreciate the value of manuring, or clearly to understand the best methods of collecting and managing it. Go to one of their stable yards, and you will see it scattering every where, evaporating in the sun, or washing off with the rains. How differently do judicious farmers act in other sections of the country? They take as much care to make manure as to raise crops; they use as much diligence to save their manure after it is made, as to save their crops. Go upon the farm of such a man, and you will find order, system, and economy visible every where. It ought to enter into the plan of every farmer annually to manure so many acres, such and such portions of his worn out land. To effect this would only require a little care and economy in the management of his affairs. To a farmer possessing an ordinary number of stock, it would be much easier to enrich a field of worn out land, than to prepare for the plough the same quan-

tity of new ground. If this be the case, how much more preferable is the one plan than the other. By reclaiming the old ground, you increase the value of your land, by making that good which before was useless; besides this, you save the timber of the new ground as well as much severe labour in clearing it. Let me here remark, that the saving of timber should begin to enter into the consideration of all land holders in this section of the country: by our wretched system of destruction, it is rapidly passing from the face of the land; and in another quarter of a century we may find it necessary to economize it even for fuel. It is not with us, as in many other places, where stone-coal abounds; of this substitute we have none or but little. The first settlers of a country are always prodigal of timber, because it is abundant, or rather, the great obstacle they have to surmount. We retain the habit of destroying timber after the reason of it has ceased to exist. How few of our farmers economize their wood land as they ought. Pass by the clearings, and the heart sickens at the waste and destruction. Even the thick coat of leaves that cover the ground, is raked into heaps and burnt; when, with very little more labour, they could be removed to the stable yard, where they would increase the stock of manure.

Another great error in our system of husbandry is that of *over-cropping*. We attempt to cultivate more than our manual force will justify. This is a capital defect in our practice, and until this is corrected, there can be no agricultural improvements. This practice, likewise, originated with the first settlers. When the country was first opened, such was the fertility of the soil, little more was required from the hands of the farmers than to sow the seed and it would come; but now cultivation is necessary. The farmer that over crops himself, must, in the first place, put his seed into the ground in a very slovenly and imperfect manner; in the next place, he can only half cultivate it. He must of necessity work part of his crop out of the proper time and season; some other part he scarcely works at all, until it becomes too late—the consequence is, he only makes half a crop. How much wiser would it be to prepare our grounds well, put out less, and cultivate them in a proper manner?

Nothing more strikingly exhibits the wretched state of our agriculture, than to compare the products of our soil with what is made at the north. There, it is considered poor cropping, unless their wheat turns out 25 to 30 bushels per acre; even 40 bushels are often made. Here, take the whole county of Rowan, and the average product to the acre is not 7½ bushels. The same may be said of every thing else that we raise.

Now, to what is this great difference owing? Not to the lands; for our soil, originally, was equal, if not superior, to theirs; nor is it as much owing to the climate as some would seem to think. No! it arises principally from the different conditions of our agriculture, and the different modes of management. We *overcrop* ourselves, take no pains to improve our lands, put our crops in badly, and tend them still worse. To avoid the error of putting out too much, every farmer should, before he commences preparing his grounds, consider well how many acres he can cultivate with the manual force at his command; and, in order that he may see his way clear, he should measure all his fields, so as to know the exact quantity of acres each contains. How differently do the most of us proceed. We *guess* at the number of acres put into cultivation, and, like all guess work, we generally fall wide of the mark. If any farther comment upon over-cropping were necessary, we need only, at this time, look through the county and view the spectacle. Here we see one farmer neglecting his corn, to get the grass out of his cotton; there another, suffering his wheat to fall for the want of cutting, in order to get over a certain piece of corn; and in how many places will we not see both corn and cotton completely brought under by the grass? I am aware, that the wet season of unusual length, is one

cause of this; but the principal cause is, that the farmers have put out more than they can manage.

The next defect in our prevailing system, that I shall notice, is a deficiency in our farming implements. It is as impracticable for the farmer, as it is for the mechanic, to do good work with bad tools. Examine the tools of the greater number of our planters, and we need search for no other reason why our fields are only half cultivated. Look particularly at our *ploughs*! The plough is the most useful and efficient of the farming implements: it is the first instrument that enables man to bring to his aid, in the cultivation of the earth, the power and strength of the brute creation. Its form at first was rude and simple, consisting of but little more than the branch of a tree so shaped as to tear up the ground with one prong, while the other was hitched to the oxen. In the unenlightened regions of the east, the primitive plough is still made use of; but in our own country, no instrument of husbandry has been brought nearer to perfection. There are various kinds of ploughs suited to different purposes in farming: we hear of the Jagon, or Cary; the Freeborn, and several others; but we take no pains to procure models and try them. We go on in the habits and with the ploughs of the first settlers, regardless of what is passing around us in the way of improvement. If we wish to ameliorate our condition, we must open our eyes and learn from the experience of others. Nothing so much retards the progress of improvement as prejudices, and the attachment to old habits. Such is the influence of prejudice, that in an obscure corner of Europe, the people still plough by fastening that instrument to the cattle's tails. We are not quite that bad—but really, within a few years, I have known considerable planters, instead of iron traces, make use of grape vines and hickory withes. What false economy! what miserable management! But it is not only necessary that we should have good tools, in order to do good work; we should also take care of these tools. In this particular, the greater part of our farmers are culpably negligent. Go to one of their farms, and you may see a plough lying in this fence corner—in that a hoe; here one thing, and there another? What is the consequence? When these tools are wanting, much time is lost in searching them up, and it often happens that some of them are not found at all! To avoid this, every farmer should have some place set apart where the tools, when not in use, could be brought and laid away safe from the weather, and always near at hand. There is nothing like a little forethought in a farmer; it is always attended with economy in the employment of time, and the management of business. A farmer that looks before him, is seldom over-hurried in his work, and is never idle for the want of employment. Even rainy days he knows how to spend to good purpose; at such times he repairs his tools, and fits them for use, or he finds some other useful employment.

Another defect that I shall notice, is in the raising and management of live stock. Is it not a fact, highly discreditable to the large, populous, and wealthy county of Rowan, that it cannot supply itself with beef? For the past 8 or 10 years, not fewer than between 300 and 350 head, in each season, have been brought from the upper counties and slaughtered for the market of this small town. In exchange for these, no kind of produce is taken—cash alone is paid. If every farmer in the county would so attend to his stock as to sell one beef annually, the money that now goes to the mountains, would remain and circulate among us. But before we can promise ourselves much improvement in our stock of cattle, two things must take place—*first*, a change in the breed of our cattle—*secondly*, a change in our present mode of keeping and treating them. Time will not allow me to dwell upon either of these heads. I will, however, suggest the propriety of our adopting proper means to procure some of the improved breeds so much extolled in the states north of this; these, crossed with the best of our present stock, might produce valuable results. As connected with this subject, I will add a few words upon the business of the dairy. Without

the hazard of refutation, I may say, that there is not at this day, a first rate milk cow in the county of Rowan; nor will there be, until an entire change takes place in our system of management. I know persons who milk from 8 to 10 cows, that do not average one gallon each; when, with proper care and attention, the same quantity of milk might be obtained from fewer than half of the number. We should keep few cows, feed them regularly, and shelter them from the rigor and inclemency of the weather. One cow, well taken care of, will supply more milk than three badly kept; and the expense of feeding will by no means increase in the same proportion. We hear of cows giving from 20 to 30 quarts of milk per day; we scarcely credit such statements, because we have none ourselves; but nevertheless it is true.

But I leave this part of the subject to make a few remarks on that of hogs. Our breed of hogs is much better than that of neat cattle; in fact, we have several kinds of hogs valuable for their hardy and thriving qualities. The Chinese hog has lately been introduced into the county; whether it will prove a valuable acquisition, I cannot say. In Pennsylvania they are only esteemed for the purpose of crossing with other breeds; and it is, probably, in this way alone, only they be valuable to us. But if our swine are good, and our bacon has excellent, it must be conceded that our plan of feeding for slaughter, is not only *wasteful*, but wretched in every respect. The common practice is to make a pen of fence rails, so as to take in running water; in this, all the hogs intended for the knife, are put, and the corn is thrown into them in the ears. The first rain that comes converts the whole surface of the pen into a perfect quagmire, and the poor animals have to root in mud up to their eyes, for their food. The hog is of a hot and thirsty nature, but it is not an amphibious animal—it cannot thrive well in mud and water. For the sake of experiment, let a few hogs be placed in a pen which shall be kept dry and shielded from the wet and cold; take a like number in the same plight and condition, and throw them into a common mud-pen; let the same quantity of food be given to each parcel, and the result will be such as to convince the most obstinate of the folly and inhumanity of the present practice.

If we are deficient in our attention to the management of cattle, we are still more so in raising that valuable animal the sheep. We are told that sheep, in the northern states, yield from 6 to 12 pounds of wool at one shearing. Our flocks do not average more than 1½ to 2 pounds to the head. This great disparity must arise, as well from the quality of our sheep, as from the little care and attention we bestow upon them: in both of these particulars we must introduce changes before we can expect much improvement.

The making of fences is one of the greatest drawbacks on farmers in this section of the country; it consumes much time, requires much labour, and destroys much timber; but good fences insure the safety of the crop, and add much to the appearance of the farm. Let us once get into the enclosing plan, and there will be less fencing required; even now many of our middle fences might be dispensed with. The Society ought to encourage the raising of hedges: their introduction will form an era in our agricultural history. They not only answer every purpose of rail fences, but they are more durable; they are ornamental, and contribute very much to set off a farm. The cedar and white thorn are likely the best materials in our reach. Instead of middle fences, if we were to divide our fields with hedges, it would soon answer every purpose, and have a very striking effect.

When the western part of N. Carolina was first settled, it was surpassed in fair prospects by none of the new countries. The old inhabitants still recollect its towering forests, its luxuriant range of grass, cane and pea vine, abounding every where. Its fame spread back to the north, and the tide of emigration was set in this direction. Pennsylvania, N. Jersey, Maryland, and Virginia, poured thither their popula-

tion to take possession of the new land of promise. But all is now changed. One half century has brought about a wonderful revolution. The descendants of those who flowed here from the north, are now passing off in crowds to the west. To what is this owing? Surely, in a great measure, to a deterioration in the appearance and condition of our country, effected, altogether, by our wretched, destroying, and murdering system of cultivation. The only way to check this emigration is to improve our lands and increase the profits of agriculture. I do not pretend to assert, that the most perfect condition of agriculture would keep all from moving. No! there is something in the spirit of the American people, that impels them towards the forest. The current is set to the west; it will flow on: The Mississippi river could not stop it—the stony mountains will furnish no barrier. As long as there are new countries in prospect, our people will move on until the waters of the Pacific stop their march. But, if we cannot stop it, we may check it; we may, in a measure, remove one of the causes of emigration; an emigration that is draining us of our people and wealth. Upon a fair principle of calculation, North-Carolina, in the last ten years, should have increased in its population 200,000 souls; but, from the returns of the census just completed, it would seem that our population has only gained about 70,000 souls. Where are the rest? *Gone in search of better lands beyond the mountains!*

But although half deserted, our country is still a delightful one. We have a fine climate,—pure air,—a soil susceptible of the highest improvement, and fitted to the products of every part of the Union. We live on a kind of middle ground, where the staple of the North and the South meet together in the same fields, and flourish in social proximity. All that we want is an improved state of husbandry, and a market for our products. Every state in the Union is pressing forward in the great race of improvement. Every class of the community is looking to its own interest. The merchants are uniting in every scheme to enlarge the circle of commerce, and multiply its gains; the manufacturers are making powerful efforts to exalt their interests, even on the ruins of all others; but the farmers alone, seem careless and indifferent. Above all, the farmers of this part of the country are heedless and unmindful of what is passing around them; of their own character and interest, and the character and interest of the state. If we go on many years longer in this way, our agriculture will become still more wretched, and our population will leave us in search of better prospects in the West. Self-interest, then, pride and patriotism, all demand our exertions in the cause of improvement; and let it be hoped, the formation of this Society is a proof that the call will not be made altogether in vain.

THE BEST TIME TO FELL TIMBER.

Washington, July 31st, 1821.

DEAR SIR—

I have received your favour of yesterday, asking of me, as a member of the Agricultural Society of Maryland, a communication for your Journal, on "the proper season for felling Timber, with a view to its durability" and I shall take pleasure in complying with your wishes, as far and as well as my official duties will permit, and my observation enable me. The one, will necessarily require me to be brief; the other, I fear is too limited to add much to the mass of information which is embodied in the Farmer.

It will readily occur to you, that the life of man is insufficient to determine, from actual experiment, the question propounded; and the short period that my attention has been directed to agriculture, or to any subjects connected with its objects, could not admit of any reasonable conclusions founded on experiments, had they been made, which has not been the case to any extent. I am compelled, therefore, to reason from analogy, to resort to facts, having their origin at a much earlier date, and to avail myself of the knowledge and experience of others, in support of my opinion—which is, that "the most proper

season for felling timber, with a view to its durability," is in the winter, when the sap has ceased to circulate; and that the extent of this season is regulated by the climate, where the timber is to be cut. In northern latitudes, it commences earlier and continues later than in southern; but, in all cases it is requisite that the sap shall have ceased to flow, in order that the timber, when cut shall be as free from moisture as possible: universal experience teaching us that all substances in a dry state, are less liable to decomposition, or more durable, than those which are charged with moisture.

The influence of the sun, acting on vegetables, causes an accession of sap, and an enlargement of their parts; and if cut while in a state of rapid increase, they are, from the want of firmness, as well as from superabundant moisture, more liable to decay, than when cut after they arrive to maturity. This may be proved by our corn stalks, hemp, the straw of wheat, rye, and every other grain; all, of very rapid decay when cut in a green state, and very durable when arrived at maturity.

A Tree may be said to arrive at maturity every season. In the spring, the process of vegetation commences; and in the winter, it is at maturity and as fitting for the uses of man, as regards its durability, as it can ever be. During a state of rapid vegetation, it partakes of the perishable nature of all other plants; and its decay is more or less rapid in proportion to the sap which it may retain. Thus, willow, poplar, or maple trees are not found to be as durable as locust, cedar, or liveoak; those being as remarkable for the quantity of the sap contained in them, as these are for their dryness. Trees of rapid growth being very porous and almost universally surcharged with sap, decay rapidly, while those of slow growth and close texture are found to be very durable. The first, no one thinks of using for any purpose requiring durability; while the properties of the other are known and appreciated by all: their value seems to be proportioned to the greater or less degree of moisture which they naturally retain. If then, universal experience informs us that sap is destructive, and dryness favorable to durability; it follows, that the winter season must be the most proper time to cut timber "with a view to its durability," as it will not be denied that all trees are at that period more devoid of sap, than when in a state of rapid vegetation. Whether the sap descends to the root, or goes toward the formation of the tree, is of little consequence to us; it is sufficient that the moisture is disposed of, and that the tree is at maturity.

The sap is in most cases of a very acid nature, nourishing to the tree while this is in health, but destructive to the fibre of the wood when in a state of fermentation. In the winter season this fermentation, as well from temperature, as from the diminished quantity of the sap, does not take place. In the summer season it is hastened by the intensity of the heat, and its effects are proportioned to the quantity of sap: thus, a cabbage will rot sooner in summer than in winter, and this remark will apply, it is believed with equal force, to all other vegetables, from a live oak to an asparagus shoot.

That the sap rises in the spring, no one can doubt; and that it rises by the wood vessels, and descends by the bark has been sufficiently proved by various experiments made to ascertain these facts. What new changes it undergoes in the course of its circulation, I am not aware of, but part is undoubtedly suberised to form the wood; and the thinner and more perishable parts are carried back by the bark, to return with a fresh supply of nourishment to the tree; through all the veins and arteries, of which it is destined to move like the blood in the human body, giving to it health, and strength, and growth.

During the summer, while in rapid circulation, it necessarily follows that the thick and thinner particles of sap are commingled in the body of a tree, the part required for useful purposes; and it is not until the sap ceases to flow, that the thinner parts are taken up by the bark, the part of all others the most liable to decay.

Sir Humphrey Davy, has satisfactorily determined

this question, respecting the circulation of the sap; the one, which in my opinion, should regulate us in preparing all timber requiring durability. He formed rings, by cutting the bark from the trunks and limbs of trees, without wounding the wood. The result, invariably, was the rapid enlargement of the upper part, and in some cases the formation of an annulus, by the upper part of the bark descending to unite with the lower. From experiments made by myself, I find a peach tree is as well suited to satisfy the mind on this point as any other, for the gum, not being liable to dry up, oozes from the upper bark, and shows very clearly the course of circulation. On this experiment it has also been frequently discovered that the sap, not being able to return to the root, prematurely forces out fruit from the limb; but this generally proves fatal to it the succeeding year, by reason of the superabundant sap.

All who are curious in these matters, I beg leave to refer to Davy's agricultural chemistry, and various other works on this subject, as my time will not permit, and the occasion does not call for further details.

It now remains for me to present some facts in support of my opinion, and in doing so as I before observed, I shall be necessarily driven to authority other than my own. I shall not confine myself altogether to agricultural information, because a successful mode of preparing timber for Naval purposes, will answer equally as well for the purposes of agriculturists; provided, the means of doing so are by them attainable, and the expense attending it unexceptionable. Your inquiry only goes to "the proper season for felling timber, with views to its durability"; but in this investigation, I shall be compelled to examine other modes of arriving at this object.

It has been stated, that the sun and seasons have an influence on the rise of the sap; that the sap like all other moisture, is deliterious to wood; and that in a certain state it is particularly pernicious; but there is another influence, nearly if not quite as powerful as the sun, which operates in winter as well as in summer, and is particularly evident in vegetables of rapid growth, such as turnips, radishes, lettuce, &c. &c. I mean the influence of the moon. And before I am deemed a visionary being by your readers, let me ask why that body whose attractions can raise the tides, and influence all animal creation, should not have the power to put the sap of vegetables into circulation, assisted as it is by capillary attraction. Let those who doubt it, satisfy themselves. Let them sow some radish seed on the increase of the moon, and some on the decrease, and they will find that the first will shoot up above the ground, and the second will grow down into the ground: nay, so well known is this fact to the gardeners of Louisiana, that in the first period, seeds are invariably sown to produce vegetables, valuable for their leaves; and the second to sow those which are cultivated for their roots; and so well, also, are they convinced of its influence in England, the birth place of him who proved the powerful effect of the moon on the tides, that in all their contracts for timber for Naval purposes, this influence on the sap is more guarded against than any other. More attention is paid to the time of the moon when timber shall be cut, than to the season of the year.

If then, influences of this nature extend through the vegetable creation; if it is operated on by general and not by partial laws; if the influence of the moon will cause a radish to shoot up from the ground, or its absence allow it to shoot down, it would seem that the period of the moon, as well as the season of the year, should regulate the cutting of timber when it is required to be durable. To some persons it has been a matter of much surprise that different pieces of the same kind of timber, cut in the summer season should not decay with equal rapidity; and also, why that cut in the winter should not all be equally durable; perhaps, a reference to lunar influence might account for the difference observed.

Dryness is favourable, and moisture unfavourable to the durability of timber; it should therefore not only be dry when cut, but be kept so when in use. Timber, if saturated with sap at the time of being cut,

it becomes when seasoned very porous, fit to retain whatever moisture it may afterwards be subjected to, and liable to be operated on by the principle most hostile to its durability; whereas, the reverse is the case with timber that is felled in the winter season, when the tree is devoid of sap, its fibre close, and its texture firm.

Artificial means are sometimes used to produce what ought to have been left to nature—and because the heat of fire is employed to shrink and season timber cut in the summer months, for the purpose of rendering it more durable; the same is resorted to by those who cut their timber under the most favorable circumstances. Burning the butts of posts is an almost invariable practice, and, although it may be in some cases more beneficial than in others, still it can never be injurious.—In some nations this practice is resorted to, for the preservation of ship timber; the ends of the beams are charred by fire, as well as the knees used to secure the others. Various as may be the practices of different nations on this subject, they all lead to one conclusion—which is, that dryness is beneficial, and moisture destructive to timber. This principle governs our practice on a more extensive scale than any other; and, as upon the adoption of means to keep our ships dry, we rely for their preservation, we are now building houses over all of them, to screen them from the winter's snow, and summer's rain. An opinion once prevailed, that immersion in water, to soak out the sap, was the best means of preserving timber—but this idea seems gradually to have yielded to more rational opinions; and, that perfect dryness is better than the adoption of one evil to get clear of another, scarcely now admits of a doubt. That water will preserve timber for an almost interminable time, if constantly immersed, I do not deny; but its decay, on being exposed to the air, will be rapid in proportion to the time of immersion; for, although it may be divested of the deleterious sap, it will have absorbed that which is scarcely less injurious.

You enquire of me as to the best means of preserving timber; but this depends on more causes than the influence of the sun and moon, and the season of cutting, for much depends on arrangements. In the ship-yards of France, it is the invariable practice to place timber under sheds, resting the logs on their ends, to facilitate the escape of the sap. This is the only position that posts, for fences, can be placed in; but I may be permitted to offer a few remarks upon the manner of placing rails.

A tree, when sawed across the butt, exhibits a number of circles, which are called annual circles, it being believed that the tree has one for every year of its growth. These circles are formed of hard impervious wood, and between them is a soft spongy substance, the one impervious to water, the other calculated to absorb it rapidly. When a tree is split for rails, it is divided into sections, having the bark on one side, and the two others terminating at the heart or centre. The position then invariably given to the rail, wherever I have been, is, to put the bark side down, and the heart angle up; the consequence is, that the rains and dews which fall on it, are absorbed by the spongy substance between the circles, and carried down into the hollow formed by them, and from whence they have no escape but by rotting and soaking through to the sap and bark on the lower side. In the course of time, the rail, by its own weight and increased weakness, sinks in the middle, an accession of moisture hastens its decay at that spot, where, in a short time, it breaks. Now reverse the thing—place the rail with the heart side down, and the bark up—the rail is then protected by a kind of projecting roof, formed by the bark side; the cups formed by the annual circles, will empty out instead of holding moisture—and the whole rail will be without impairing its strength, placed in a situation the most favorable for its preservation. This principle of protecting timber by means of its annual circles, should be strictly attended to, in all dispositions made of it, for you will readily perceive how a plank, for instance, may be nailed on, so as to turn off or absorb water by means of them; and, in laying

boards, you will see at once the difference of laying the heart side up or down.

It is reasonable enough to believe, that timber cut at the most favorable season, is not entirely devoid of the principles of its destruction, and as its decay must be more or less rapid, in proportion to their quantity, a necessity for neutralizing or destroying them, for the preservation of it exists. This is attempted in various ways—some try to effect it, as has been already shewn by charring, others by immersion; but salt is resorted to, by us, as a general preservative.

The immense value of our ships, compared with any other object, will justify this expensive and most effectual measure, yet resorted to, as is proved by an examination of our older ships; but, its application to the preservation of materials for farming purposes, might not be convenient, or justifiable by the smaller value of the article to be preserved; for it will not be denied, that if the means used to preserve will cost more than the article, it would be wisest to renew this, when decayed or worn out. A simple and cheap mode however does exist, for the preservation of timber, against the destructive properties of this foe to its durability—it is one resorted to by us, when salt cannot be applied, and it is perfectly applicable to farming purposes; I mean white washing with lime. It would be affectation in me to attempt to show the chemical process by which lime produces this effect—an attempt at a display of learning in this discussion, either in botany or chemistry would only render my ignorance of those sciences manifest—nor does your call on me warrant the attempt.

It is well known that alkalies, of which lime is one, are the enemies of acids—and that white is a repellent of light and heat.

The object of housing timber for its preservation, is to secure it from the effect of the moisture which insinuates itself into the rents and cracks, which an exposure to heat and light occasion.

A piece of furniture, which may be preserved for ages under cover, would be ruined by a few days exposure to the sun, as it would be cracked and rent; and a continuance of the exposure of it to the sun and rains, would occasion it to rot.

Lime unites in itself, to a certain extent, the advantages of housing and salt; the one, protecting the timber from the injurious effect of the sun; the other destroying the acid which may remain in the wood, after every precaution to guard against it has been used.

The effects of rains and dews must be guarded against by so arranging the annual circles, as to make every piece contribute towards its own protection.

To state all of the facts which I could adduce in support of these opinions, would be to swell this paper to an inconvenient length—every reader will be able to judge by his own observation, whether my reasoning is well or ill founded; and, did the occasion even call for it, I could not now be more diffused, as I am under the necessity of leaving this place for Norfolk, on public service, to-morrow morning; but should any thing further suggest itself to my mind, connected with this subject, which is one of the highest interest to farmers, I will take pleasure in communicating it—and I shall be happy if these hasty remarks, thrown together without arrangement, or any reference but to my own recollections, be of any utility.

With sentiments of respect and esteem,

Your obedient servant,

D. PORTER.

J. S. SKINNER, Esq.

ON MANURES.

The committee on manures, in obedience to the direction of the Pendleton Agricultural Society of South Carolina, at their last meeting, beg leave respectfully to submit the following

REPORT:

JULY 9th, 1818.

Aware of the great importance of the subject, and of the difficulty of arranging a system, at once simple and efficient, your committee have felt themselves embarrassed by another consideration of a painful nature. A conviction that an incompetent discharge of their duty may lead their fellow citizens into errors and losses, and endanger the reputation of a system on which all good farming is founded, and which, when judiciously prosecuted, has always been attended with the most beneficial effects. Your committee however, have not suffered themselves to be deterred, even by this consideration, from uniting their most zealous efforts in so good a cause; trusting to superior wisdom for a happy issue, they will only add, that the subsequent recommendations are founded either on their own knowledge and experience, or derived from the best and latest authorities, to which they have had access.

Before entering upon the subject of their immediate duty, your committee would earnestly recommend to their brother farmers to examine and ascertain precisely, the nature of the soil which is to be the subject of improvement. In the vegetable, as in the physical world, the nature of the defect should be completely understood, in order to adapt the appropriate remedy; and as our fields not only differ materially, but are even sometimes of an opposite quality, it is evident that a very judicious course of management for one field, may be extremely pernicious for another.

Believing this point to be of primary importance, your committee will endeavour to assist the judgment, by enumerating the different soils of this district, as far as they are acquainted with them; for this purpose it will be sufficient at present to consider them under three divisions:

First: Stiff clay soils, generally red, with more or less sandy vegetable earth on the surface.

This soil is mostly sterile, after a few years of cultivation in the ordinary way; but as one principal cause of its sterility is its adhesion, and as clay is known to contain a great portion of the food of plants, it follows that the first step towards improvement, is to destroy its adhesive quality, in order to enable its fertile particles to act. To accomplish this object, clay soils should be mixed with such particles as tend to open them and break the cohesion of their parts; when this is accomplished, this land becomes highly valuable, retaining manures for a length of time, and with good management will never return to its former state. Among other substances proper to be mixed with this soil, may be enumerated sand or gravel, ashes, sawdust from mills, rubbish from old buildings or yards, straw, stubble, rotten wood, burnt clay, farm yard manure, and gypsum, or plaster of paris. Tanner's bark, and substances which promote a strong fermentation, are peculiarly excellent, and it is believed that a mixture of any or of all of the above mentioned substances, in a compost heap, would triple the product of such land, if properly ploughed in and brought into good tilth by the plough and harrow.

The second division may be called a loamy soil. This kind of earth is less cohesive and more fertile than the former, and is composed of sand, clay, and an oily vegetable substance, with a substratum of red clay at some depth, on uplands, and generally of bluish clay on river or creek bottoms. These latter are generally admitted to be so fertile as to require little aid from manures; but the uplands after a few years cultivation will require a compost of stable manure, sand and vegetable rubbish, to break the tenacity, and recruit the poverty which successive crops will produce. Loads of mud and decaying leaves, hauled from creeks and stagnant pools, are very highly recommended for this soil, and the proportion of sand or gravel should be increased as the land becomes more stiff.

The third division will comprise light sandy soils, with an ash coloured mould at top. This soil is more porous and open than those which we have considered. It receives moisture with great facility, but parts with it as easily. To improve this soil, clayey loamy earth must be spread over it, and composts of animal and vegetable substances; but all light sandy particles must be carefully avoided. This kind of earth is the only one in this district, which will bear what "Arator" calls, "the American custom of penning," as the treading of animals imparts a firmness to the soil which in a great measure will prevent the continual evaporation of moisture, while it receives great benefit from their manure.

Your committee having thus briefly endeavoured, (by the classification of the great bulk of the farms of this district,) to erect some standard by which an intelligent farmer may correctly ascertain the nature of his soil, its defects, and their appropriate remedy, will proceed to the subject immediately committed to them; the collection and application of manures.

All the manures which can be used in this district, may be classed under four heads: animal, vegetable, compound, and fossil.

Animal manure, by which we at present mean, the dung of horses, cattle, sheep, and hogs, with the refuse of the poultry yard, is one of the most powerful manures that can be applied to the soil, and the most approved modern writers strongly recommend that it be immediately buried beneath the surface, there to undergo its putrefactive process, that the earth above may be benefitted by the ammoniacal gas which it evolves in its decomposition. The dung of horses, hogs, and poultry, on account of its great tendency to fermentation and putrefaction, is best adapted to cold, stiff, and clayey soils; while that of cattle may be most beneficially applied to warmer soils. On sandy porous soil, cattle may be confined by a temporary fence, on a strip of land, which being removed at a given time, (according to the number confined thereon,) their dung should be immediately ploughed under, that it may not be exposed to the action of the sun, or of rain. But as nine tenths of the farms of this country, would be materially injured by the poaching of the soil; and as very few of our farmers keep a sufficient stock to improve any quantity of

land, in any way, by animal manure alone, your committee will not detain you longer on this head, but will proceed to the consideration of the second class, or vegetable manure.

In this division, we comprehend either green plants turned under by the plough while growing, or parts of vegetables, after they have been decomposed or burnt, with their ashes roots and fibres.

The only experience your committee themselves have had of ploughing under any vegetable substance standing on the soil, is the case of ploughing in stubble. This practice has for a number of years been performed on cold, stiff, blue clay river bottom land, from which a succession of the same crops for perhaps seventy years, had worn away all the top or vegetable earth. This practice has always been attended with beneficial results; for though the stubble is a long time in decomposing, and affords but little soluble matter for the food of plants, yet the tenacity of the soil is always broken and a considerable degree of *bilth* produced, enabling the fibrous roots of the plants to penetrate in all directions in search of their food.

But if dry stubble ploughed under, produces such happy results, how much greater would be the benefit, if a green crop, in full luxuriance, in the season of its blossoms, were treated in a similar manner? The interior woody fibre of the vegetable, taking a longer time to decompose would have the same effect as the stubble, of opening the soil, while the juicy bark and leaves, speedily undergoing the putrefactive process in the earth, would impart a richness and fertility to the soil, which would amply repay the little labour and expense that would be incurred. Lord Kaimes objects to ploughing under green vegetable crops, merely because the vegetables commonly used for this purpose, are proper food for animals, and he conceives that the best way of converting it into manure, is to pass it through the body of an animal, which will increase its value, while the dung and urine will enrich his soil more than ploughing under the green crop. Your committee will indulge themselves in two remarks on this objection. The first is, that so little labour and expense is required in seeding and the two ploughings required by the vegetable system, that any common industrious farmer may sow one field for feeding and others for turning under, and if the green vegetables are to be cut, and carried perhaps some distance, to the stalls and sheds, to prevent poaching, this continued daily labor will make it the most expensive mode. The other and stronger objection to Lord Kaimes' plan, is that few, if any of our farmers keep a stock sufficiently large to manure any quantity of land, by the dung of animals alone, while the vegetable system manures the whole field at once, and equally.

Sir Humphrey Davy, in his lectures on agricultural chemistry, observes, that "all green succulent plants contain saccharine or mucilaginous matter, with woody fibres, and readily ferment. When they are to be employed for enriching a soil, they should be ploughed in when in blossom, for it is at this period that they contain the largest quantity of easily solu-

ble matter, and that their leaves are most active in forming nutritive matter. Green crops, pond weeds, or any kind of fresh vegetable matter, require no preparation to fit them for manure. The decomposition slowly proceeds beneath the soil: the soluble matters are gradually dissolved, and the slight fermentation that goes on, checked by the want of a free communication of air, tends to render the woody fibre soluble, without occasioning the rapid dissipation of elastic matter." In speaking of dry straw, the same author states, that when it is made to ferment it becomes a more manageable manure, and that it is usual to carry it to the dung hill for this purpose; but he says, "it is *worth experiment*, whether it may not be more economically applied, when chopped small by a proper machine, and kept dry till it is ploughed in for the use of a crop. In this case, though it would decompose much more slowly, and produce less effect at first, yet its influence would be much more lasting."

On this latter point, of dry straw, it is sufficient to remark, that this celebrated chemist does not positively recommend that it be ploughed in without undergoing fermentation; he states it as a subject of doubt, and *worth experiment*, and only believes it to be more economical. He has himself given us the result of an experiment of his own, which should teach us that the only use of applying dry chopped straw, would be the opening a stiff soil. In the very same page from which the above recommendation is extracted, he says, that from "400 grs. of dry barley straw, I obtained 8 grs. of matter soluble in water, which had a brown colour, and *tasted like mucilage*." From 400 grs. of wheat straw, he obtained only 5 grains of a similar substance. This experiment sufficiently demonstrates, that there can be no comparison between mere woody dry fibre, and the succulent luxuriance of a vegetable in full sap; but *should any further elucidation be wanted*, we have, in the very next page of the same author, a fact which ought to satisfy the most sceptical. It is in these words, "Woody fibre will not ferment, unless some substances are mixed with it, which act the same part as the mucilage, sugar, and extractive or albuminous matters, *with which it is usually associated in herbs and succulent vegetables*."

For precision and accuracy in chemical experiments, Sir Humphrey Davy may be safely trusted; but your committee cannot believe he was a good farmer. Indeed most of his experiments, instead of being applied to the valuable productions of the field, were made on "mint" and "primroses," in his garden.

Your committee have read with much pleasure, two small agricultural tracts, published by Mr. Matthew Peters, and recommend them to the attention of the Society, particularly those parts which relate to the subject now under consideration. These works, "The Rational Farmer," and "Winter Riches," contain many valuable hints on all subjects connected with husbandry; but he appears to be most intelligent and zealous on the subject of the vegetable manures, at equal war with both hot and short muck farmers. He goes on so far as to say that all animal and compound manures

should be excluded from tillage land, and should be applied to meadow and pasture alone. Two of his reasons are so strong, as to carry conviction of their truth, while others are so plausible, as to invite the experiments of all farmers. The former may be stated briefly to be, first, the comparative facility with which a whole field may be manured at once; and secondly, the exemption from weeds, slugs, trash and vermin, which farm-yard manure never fails to introduce. Your committee, in the absence of their own personal experience on this subject, will briefly state his mode of bringing a field into good tillage and fertility, and it is worthy of remark, that his soil resembles that of far the greater part of our farms.

About the 1st of October, he breaks up a stiff field, and sows, pretty thick, turnips and barley, or rye and oats, (in all cases of turnip sowing, he mixes one quart of radish seed with four quarts of turnip.) This crop is sown on land, ridged for winter fallow. In February you may put in ewes and lambs. In April or May this vegetable crop is turned completely under, with a proper plough, and on the furrow he sows buckwheat, turnips, and vetches, any or all (but a mixture seems preferable,) and harrows them in lightly. Thus you have one crop of vegetable manure under furrow, while another is growing above it. The end of July, or beginning of August, he turns under this second crop as before, and the end of September his field is ready for wheat.

This is perhaps too brief an analysis of his mode, a continuance of which he strongly recommends, and in conclusion he calls on all farmers, with the consciousness of all agricultural integrity, to throw aside the worn-out thread-bare garment of ignorance and perverseness, and to consider the advantages arising from two vegetable manurings, and a sprinkling of sheep manure, performing their putractive office within the soil, and keeping therein all their native salts and fertile oily juice, with only three ploughings.

Your committee though inexperienced on this subject, cannot avoid recommending to this Society, the adoption of a plan on principles similar to those of Mr. Peters. The end of September, any of the following seed, or a mixture of them, as judgment may dictate, should be sown, on one ploughing and harrowing in: turnips, barley, Egyptian oats, rye, llanover turnip, or any other succulent vegetable, not usually injured by frost. In the yeaning season your ewes and lambs, and young calves may be pastured on it without injury. The end of April or beginning of May, this vegetable crop should be neatly turned, three to five inches deep, with a good bar share and two horses, having previously rolled it. Immediately on this furrow, any or a mixture of any of the following seeds should be sown, and harrowed in, so as not to bring up the under part of the furrow just turned. Buckwheat, vetches, or tares, turnips, cabbage seed, peas, chickory, and in general, all luxuriant, juicy vegetables. The first of August this second crop should be rolled, and neatly turned under; and if wheat, barley, or Egyptian oats are to be the crop for the ensuing year, they may be sown any time

in September, or first half of October, taking great care so to water furrow your field, as to cause as little washing as possible. Should this field be wanted for corn, the next spring, it is recommended to sow it with turnip and radish in September, and your cattle hogs and sheep may be fed with the turnips in winter, and the field be broken up for corn the end of March.

All clover and other grass lays have long been used with unvarying success, as a vegetable manure. Their direct effect is to open and divide the soil by their woody fibre and roots, and to enrich it with their mucilaginous substances, which are easily soluble in water. Old pasture fields should be suffered to grow up, or some time previous to being turned in, that a larger portion of vegetable matter may be imparted to the soil. It is not uncommon to see some worn out fields, thrown out of cultivation on account of their sterility, growing up in rag weed; the farmer of good judgment, keeping stock of every kind out, would turn under these weeds, before the seed begins to form. This process would encourage a more vigorous growth on the land, which should be treated in the same manner, and if he would but assist the benevolent designs of nature, and sow down a winter vegetable crop, the poorest soils would be restored to a state of fertility. Let the farmer who is afraid of a little trouble, compare the labor and expense of a few ploughings, with all the heavy and laborious operations necessary in clearing new lands, and placing it in good order to receive seed; and he will find it less laborious to improve twenty acres of his worn out home fields, than to clear two. This calculation is within the reach of any one.

The ashes of all vegetables is an exceedingly useful manure, particularly to low wet and stiff soils. The vegetable alkali contained in them, gives solubility to all vegetable substances, and from its strong attraction for water, may tend to give some degree of moisture to the soil, or to other manures; on this latter account it is of great service, properly mixed in a composted heap.

There are many other vegetable substances which may, with success, be used in restoring worn out tillage land, but as most, if not all of them, may with far greater effects be transferred to the compost heap, your committee will proceed to the consideration of the third division, or compound manures.

Sir Humphrey Davy informs us, that all vegetable and animal substances are consumed in vegetation, but they can only nourish a plant by affording matter soluble in water, or gaseous substances capable of being absorbed by the plants. This great principle appears to be confirmed by several of his experiments, and is probably as correct an account of the food of plants, as we are likely to obtain. We know that all dead animal or vegetable matter, if sufficiently divided, spontaneously undergoes a process; which brings it at length to be a fat greasy earth, which we call rich loam, or garden mould. The woody fibre of vegetables is longer in undergoing this process, but its texture is at last broken down, and it is resolved into new elements. Animals' matter, therefore, and the mucilaginous parts of vegetables

being more liable to decompose than dry woody fibre, their mixture is evidently required by their nature, and hence the origin and necessity of compost heaps.

With regard to the fermentation of compost heaps, by attending to the foregoing principle, we learn that whenever they are composed of substances easily soluble in water, or easily disengaging their gasses or vapours, their fermentation or putrefaction should be prevented as much as possible: and on the contrary, when they consist of woody fibre, and insoluble substances, such matters should be added to them as tend to promote fermentation. By attending to this simple principle, the farmer will be at no loss to prepare and manage his manure so as to make it most extensively useful.

Your committee having often had occasion themselves, to complain of the want of detailed, precise, and specific directions, in justly celebrated authors, will endeavor to avoid this reproach while they proceed to recommend the best method within their knowledge of forming this most essential requisite on every farm—a compost heap. The principles have been already stated: the practice is founded on them, and a small share of industry and judgment is alone requisite to give it the most beneficial results.

A Bountiful Providence has placed every where, substances which form a manure for the soil: but man must not expect to set still, and that manna will drop into his mouth. His faculties and reason were given him for exertion, and materials are placed within his reach, to enable him by their exercise, to improve his condition. In the first place then, let every farmer mark out a small spot, from twenty to forty feet square, according to the size of his farm; this spot should be dug down from two to four feet deep, and the earth should form a bank round it; a few stout oak posts with croches should be planted in a line along the middle of this pit, and shorter ones should be placed at the sides, to receive strong poles, on which to erect a shed of common clap-boards. Having thus cheaply made a shelter for your manure, which at once secures it from the sun, from rain, and from water running into it, while by removing a few of the boards, you can admit them when necessary; the next step is to bring to it a quantity of top earth or sods, and if your soil be stiff, a quantity of sand. These substances should be mixed, and a layer of one foot in thickness should be spread over the bottom of the pit: then cut down and collect all the weeds (before they seed) about your fence and farm, and spread another layer of them, of the same thickness, over the former one; then collect dead leaves, by scraping the surface of the adjacent woods, and spread another layer of them; sprinkle this last layer with all the ashes and soot you can collect about the farm; next go into your stable and cattle yard; collect all the animal manure they contain, and lay on another layer of this dung; over this spread a layer of bad fodder, waste straw, sweepings of your yard, particularly after rain, and any kind of rubbish about your buildings. You will find that your compost

heap will now be raised about five feet; but as this will probably settle, as decomposition takes place, to about three feet, you must begin again with your layers, and proceed till your pit is filled up. Should your soil be very stiff, it will be advisable to sprinkle two or three inches of sand or gravel between each of the layers, as one great recommendation of this plan is, that you may suit your manure to the nature of your soil. Should it on the contrary be light, sandy and porous, a layer of loamy clay should be occasionally introduced.

This mode of making compost manure, requires but one part out of five of stable manure, to create a fermentation through the whole mass. Should it not speedily commence, you have only to remove some of the boards during the first rain, and the moisture and the heat will soon produce the desired effect. All the materials for the compost heap, should be placed ready round your pit before you commence, as perhaps it may be advisable to mix the substances a little together, and not let them lay in such detached layers. Should the heap become very hot, the quality of your compost will be injured, unless you open the mass in dry weather. A very valuable addition to a compost heap, is pond or creek mud, where it can be obtained, together with the deposits of leaves and other trash, found in lagoons; and your committee will enumerate some of the materials, most of which are within the reach of us all, which they recommend to be collected and prepared for composts.

It is presumed as a matter of course, that every one who calls himself a farmer, carefully saves all the dung from his stock of all kinds; to increase this, your horses' stalls, and the sheds or yards of your cattle and sheep, should be kept constantly littered with either corn-stalks, refuse straw or fodder, dried leaves or shavings. This will both increase and preserve your stable manure. The materials for the compost heap, may be sand or gravel; sods of top earth from lanes and hollows; green weeds of all kinds; (and rag or hog-weed is excellent) dried weeds and leaves; ashes and soot; sweeping of yards, and all kinds of rubbish; saw dust from mills; creek mud and pond trash; rotten wood and bark; tanner's bark and offal; house and kitchen offal of all kinds.

Let not the farmer be misled by the opinion that these necessary operations will consume too much of his time; let him seriously set himself to work in hauling materials to his manure pit, and he will himself be surprised to find how easily and how soon compost is made when he has a little stable manure before hand.

It is believed that one man and one boy with a horse and cart will in less than one week create a mass of compost sufficient for five acres of land, and how many idle weeks do we all spend. It will be recollected also, that the greater part of this work can be performed at leisure times; the most proper and convenient for us, appears to be immediately after laying by our drill crops, as the vegetables will then be in full luxuriance, and we have some weeks of leisure. In forming your compost, the manure from your sheep yard and poultry houses must

not be forgotten, and as these are of a hot and fermenting nature, they should be spread over those layers least likely to decompose without their aid. From six to ten or twelve weeks is sufficient with proper management to reduce the compost heap to a condition fit for application, and on emptying your manure piles, care should be taken to turn and mix the heap as much as possible.

Your committee could add many others to these recommendations; but they forbear, relying both on the good sense and judgment of the Society to supply their deficiencies; and fearful of exhausting a patience so largely claimed and so liberally bestowed. In conclusion, they will only permit themselves to express a fervent hope that their labor may be useful, which will be their best reward, and that their brother farmers will show forth their faith by their good works.

The remaining subject of consideration, that of fossil manures, together with the time and mode of application of all manures to the soil, must be the subject of a subsequent report, which your committee hope to have the honor of presenting.

All of which is respectfully submitted.

THOMAS PINCKNEY, JR.

Chairman of the Committee of Manures.

SOME OBSERVATIONS ON THE

Hessian Fly;

WRITTEN IN THE YEAR 1797, BY DR. ISAAC CHAPMAN.

Original read before the Agricultural Society of Bucks County, 14th August, 1829—Forwarded to the Philadelphia Agricultural Society, and ordered to be published in the National Recorder.

(Cond'ed from page 167.)

From the 1st to the 20th of September, the flies are laying their eggs on the leaves of the young wheat, which are in a few days hatched, and the young caterpillars creep down the leaf to where it rises from the head of the plant, which is mostly a little below the surface of the ground; here they fix themselves as has been before treated of.

In that situation the caterpillars advance to their full growth, so that when very cold weather begins, they have changed into the chrysalis state; in this state they continue during the winter, fixed in the same situation at the head of the young plant; in the spring following perforate the case of the chrysalis and come forth in the fly state, in April, in the latter end of the same month, and beginning of May, as has been before stated. This completes the second generation, which lasts from the middle of September to the beginning of May following.

To place the periods of their generations and several changes in a clearer point of view, I will, in a few words, recapitulate what I have before stated.

First Generation.

1796. 1st. The eggs were laid the latter end of April and beginning of May.

2d. In a few days the eggs were hatched, and the young caterpillars appeared in May.

3d. They changed from the caterpillar state the latter end of May and beginning of June; and,

4th. The fly came out of the chrysalis the latter end of July and beginning of August, and deposited their eggs the latter end of August and forepart of September.

Second Generation.

1st. The eggs were laid the latter end of August, and in September to the 20th.

2d. In a few days the eggs were hatched, and the caterpillar appeared in September.

3d. They changed from the caterpillar to the chrysalis state, in October, in which state they continued the succeeding winter.

1797. 4th. The fly left the chrysalis state, and appeared in the latter end of April, and forepart of May.

Having thus marked the progress of this insect through their various transformations and economy for one year, and pointed out the manner in which they destroy the young plants of wheat, from thence we will endeavour to draw some conclusions, whereby we may be led to a remedy to prevent their pernicious effects.—These appear to be.

1st. To guard against their destroying the young plants in the autumn.

2d. To guard against their destroying the plants in the spring.

The first intention can be accomplished only by not sowing until the period of laying their eggs is past, before the young plants appear in leaf.

It appears the flies have generally done laying their eggs by the 20th of September; but as this point is of the greatest importance, more observations should be made; and it should be determined with the greatest accuracy, as on putting in the grain so early that the plants may have a good root in the autumn, be enabled to stand the winter, and begin to shoot up the stalk early in the spring, depends greatly the succeeding crop; and yet it is necessary that it be sown so late, that the flies cannot deposit their eggs on the leaves; and as this insect appears on many occasions to be endowed with a wonderful degree of instinct, so it appears by this unerring instinct they are directed when is the proper time to deposit their eggs, which I think will be found nearly the same every autumn.

Although I have fixed the 18th or 20th of September as the latest period of depositing their eggs, after which time I think few are laid: we will suppose it the 20th; then if the seed be sown about the 20th, all danger from the insect in the autumn will be avoided, as it will be several days before the young plants will appear above ground.

2d. To guard against their destroying the plants in the spring.

Various things are necessary to be attended to, in order to accomplish this intention.

1st. The state, nature, and situation of the ground.

2d. The variety of seed wheat sown.

3d. The time of sowing.

1st. It is found that wheat sown on ground that is situated low, sheltered, and of a wet quality, is much more damaged than that on land situated higher, more exposed, and of a dryer quality: therefore, the highest and driest ground on a farm should be chosen for sowing wheat, and the land should be well cultivated, that the young plants may have a quick growth in the autumn, and thereby be better enabled to stand the winter; and if the ground is well manured just before the last ploughing, it will keep the plants warm, and enable them to resist the frost, and make an early growth in the spring: but if laid on much earlier, the putrefactive process which takes place in the dung, and generates much warmth, will be nearly over before winter, at which time it is most necessary to cherish the young plants, and enable them to resist the inclemency of the winter frosts.

2d. The variety of wheat.

It is found that nearly all plants removed from a southern latitude to one more northerly, begin to grow earlier in the spring than those plants habituated to such northern latitude, to which those of the more southern are removed: from whence it may be concluded that seed wheat brought from the southern states will make an earlier growth than that brought from the northward, which really happens, for the yellow bearded wheat was brought from Maryland to New-York, and from thence carried to other parts where they appeared; and the white Sicilian wheat was likewise from a southern latitude; both which varieties make an earlier growth in the spring than the yellow wheat formerly sown; and as much depends on the wheat getting an early growth in the spring, for if the plants have shot up the stalks to the height of eight or ten inches, before the insect appears in the caterpillar state, it is out of danger, the stalk having attained such a degree of hardness that the insect can make little or no impression on it. Therefore it will be better to procure seed wheat from the southern states, and of such varieties as make an early growth in the spring.

3d. The time of sowing.—This is treated under the head of the first intention; but as it is a matter of the greatest consequence, to determine precisely the period in the autumn when the flies have all or nearly all deposited their eggs, it requires further and more accurate observation, for if the young plants appear above ground before that period they will be destroyed, and if the wheat be sown very late, the winter destroys the young plants, or at least so far weakens them, that they make a late growth in the spring, and then fall an easy prey to the insect.

If a number of ingenious persons in different parts of the country could make some experiments expressly to determine this point, it would be doing a very great service, not only to individuals but to their country in general, for I think this period will be found to be near the same in every year. The experiments likely to answer this purpose would be to sow a few square yards of ground with wheat every second or third day from the first to the twenty-fifth of September, and note particularly

the appearance of the insect in each day's sowing, and it might be proper to note the state of the weather between each sowing, &c.

These experiments might be made with very little trouble, they should be repeated in the same place for two or three years successively, and if they were made in a number of different parts of the country, I think they would determine the matter to a certainty; and that point being clearly ascertained, would in all likelihood, be the means of insuring to our country annually some millions of bushels of wheat more than in the present uncertainty of the matter, can be produced.

Wrightstown, Nov. 28th, 1820.

The original of which the foregoing is a transcript was written in the year 1797.—Upwards of twenty years experience has since convinced me, that the last three or four days in September, and first week in October is the best time for sowing wheat: about which time I have, for several years past, been in the practice of sowing, and though a few of the insect in the caterpillar state may appear in the young wheat, they are so few as to do but little injury.

From thy Friend,

ISAAC CHAPMAN.

THOMAS G. KENNEDY,
Sec'y of the Agric. Soc. of Bucks' County.

FROM THE BOSTON GAZETTE.

MANURE FROM SWINE, how to increase the quantity.

The dung of swine is very rich and fat manure, and so cold as to ferment very slowly. It is so rich and oily as to be double in value to neat's dung. It will render the most dry and hungry soils exceedingly fruitful in a wetish season, as I have found by experience. It resists the ill effects of drought and does most service in a hot country. By its steady and gradual supply of a rich nourishment it is particularly adapted for the growing of hops, pumpkins, running beans, and every plant which has long vines. Nothing can equal it for the growing of potatoes: it has produced me more than a peck in a hill, on the poorest hungry sands; or rather, I might say, straw only a little impregnated with the dung of hogs has done it. This is so strong a manure, that it answers well when mixed with a large proportion of earth, weeds, straw or other bibulous substances. It is almost incredible how great a quantity of good manure may be obtained, by supplying a hog sty with rubbish to mix with the dung. I have heard of forty loads of manure being made in the year, by means of one hog sty, and I have no doubt of its being practicable.

FOR THE AMERICAN FARMER.

TRANSPLANTING TREES.

Peter the Great transferred a forest to one of his summer residences on the Niva. The trees were dug up in winter with plenty of earth about their roots, which being frozen did not drop off. If this plan of removing trees should

be much followed in a cold climate, perhaps it would be advisable to dig round them before the frost sets in.

Care should be taken to replant the tree in the same position in which it grew: If its southern side be turned to the north, it will have new habits to learn, and may die before it has acquired them.

C. J.

PISÉ.

Camden, S. C. June, 1821.

An admirable Pisé Dairy, 10 by 14, has just been completed at Statesborough, S. Carolina, and has every appearance of answering the most sanguine expectations of its worthy owner.

A CAMDONIAN.

A CHRONOMETER upon a new principle has been invented in England by Messrs. Parkinson and Frodsham. Several of these time keepers were carried out by Captain Parry on his voyage of discovery, on trial, for proof of accuracy. They were rectified to the true time at Greenwich, and on their return after a long voyage in Polar seas, and an absence of 504 days, their mean error on comparison with the observatory, is said to have been only 1 second and 8 tenths! All the others were stopped or rendered useless by the extreme severity of the frost.—Capt. P. has now gone on a second voyage of discovery, in the same regions, and relies on the new Chronometers for his reckoning. The former mean error did not amount to a half mile of distance.—*American.*

THE FARMER.

BALTIMORE, FRIDAY, AUGUST 24, 1821.

PRICES CURRENT.

Flour from the wagons, \$5 to 5 1/2—Whiskey from 27 cts. exclusive of bbl—Wheat, white, 95 cents—Red, 90 a 94—Corn, 38 a 40 cts.—Oats, 20—Rye, 40—Hay, 12 a \$14—Live Cattle, \$3 a 6 50—Codfish, per quintal, wholesale, \$3, retail 3 50 a \$4—N. England Beans per bushel \$1 1/2—ditto Peas, 75 cents—Plaster in stone \$6 per ton—do, ground, \$1 35 per barrel, 33 cts. per bushel, \$8 per ton—New-Orleans sugar, \$9 to \$12 50—Muscovado, do. \$9 a \$12—American White Lead, \$12 50—Ground do. 13 a 14—Linsseed Oil, 75 cents—Feathers, 40 a 45 cents—Slad, new, \$6—Herrings, \$2 a \$2 25, declining—Fine Salt, 55 cents per bushel—Ground Alum do. 35 a 60—St. Ubes, 60—Cadiz, 50 a 55—Turk's Island, 75—Beef, 8 to 10 cts—Hams, 10 a 12 cents—Middlings, 10 cents—Butter, 25 cents—Pears, 50 cents per bushel—Eggs, 124 cts—Cheese, 8 a 10 cts per pound—Tar \$2 1/2—Turpentine, soft, 2 1/2—Cargo prices 1 1/2—Hard, 1 30 to 1 62 1/2—Pitch 2 a 2 25—Rosin, common, \$1 3/4 a 1 50—Varnish, 25 cents—Spirits Turpentine, 33 cents per gal. Virginia and Maryland Tobaccos same as last report.

Printed every Friday at \$4 per annum, for JOHN S. SKINNER, Editor, by Joseph Robinson, at the N. W. corner of Market and Belvidere streets, Baltimore, where every description of Book and Job Printing is executed.—Orders from a distance for Printing and Binding, with proper directions, promptly attended to.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL. III.

BALTIMORE, FRIDAY, AUGUST 31, 1824.

NUM. 23.

AGRICULTURE.

We take great pleasure in laying the following letter before our readers, because we believe that they will not only find great pleasure in perusing it, but that the most of them may derive great advantage by carrying the opinions of our venerable correspondent fairly into practice.

[EDITOR.]

On Live Stock,

BY TIMOTHY PICKERING, ESQ.

SALEM, February 6, 1821.

Dear Sir,

VARIOUS incidents have delayed an answer to your letter on the subject of Live Stock, proposed to be imported from England, or elsewhere. I am much pleased with the liberal offer of some wealthy gentlemen in Baltimore, to "enable you to import individuals of the most approved breeds, to be placed upon your farm within a few miles of your city, where each variety may be kept distinct; thence to be disseminated through the country—and, by means of which, our native stocks may be crossed and diversified."—You request my ideas on this subject, and my advice as to what breeds, of any species, would be best calculated to improve the live stock, and by that means the agriculture of our country. I trust you will seek other and better sources of information; nevertheless I willingly contribute my mite.

Aware of the diverse and varying opinions which have prevailed on this subject, I have examined what English books I possess; and now give you the result of the review.

Arthur Young was a practical farmer, as well as a distinguished writer on husbandry. As to NEAT CATTLE, he says, the breed which first attained great celebrity, and became "famous throughout the kingdom," was that of Mr. Bakewell. But his primary object was, to produce cattle the most profitable for meat; on which, Mr. Young says he had many ideas which he believed them to be perfectly new. "The principle is, to gain the beast, whether sheep or cow, that will weigh most in the most valuable kinds.—There is a great difference between an ox of 50 stone, [700 lbs.] carrying 50 in roasting pieces, and 20 in coarse boiling ones—and another carrying 30 of the latter, and 20 in the former. And, at the same time, that he gains the shape that is of the greatest value, in the smallest compass, he asserts that he gains a breed much harder, and easier fed than any others." he asserts, "that the smaller the bones, the truer will be the make of the beast—the quicker she will fatten and her weight will have a larger proportion of valuable meat: flesh, not bone, is the butcher's object."

The breed which Mr. Bakewell has fixed on, as the best in England, is the *Lancashire*; and he thinks he has improved it much, in bringing the carcass to a truer mould; and particularly by making them broader over the backs. The shape which should be the criterion of a cow, a bull, or an ox, and also of a sheep, is that of a hoghead, or a firkin; truly circular, with as small and as short legs as possible: upon the plain principle, that the value lies in the barrel, not in the legs. All backs which rise in the least ridge, are bad. I measured two or three cows, 2 feet 3 inches across the back, from hip to hip—and their legs remarkably short.

"In his breed of SHEEP, he proceeds exactly on the same principle as with oxen; the fattening in the valuable parts of the body; and the living on much poorer food than other sorts."—"This breed is origin-

ally Lincolnshire; but Mr. Bakewell thinks he has much improved it."

"He conceives the true shape of a CART-HORSE to be nearly that described above for an ox—thick and short bodies, and very short legs."

"A striking particularity is, the amazing gentleness in which he brings up these animals. All his bulls stand in the field to be examined."

"In the breed of his sheep, Mr. Bakewell is as curious, and I think, if any difference, with greater success than in his horned cattle: for better made animals cannot be seen than his rams and ewes—their bodies are as true barrels as can be seen; round, broad backs; and the legs not above six inches long."

In Yorkshire, Mr. Young says, the short-horned breed of cattle is common,—called the *Hollderness* breed improperly, being really the *Dutch* sort. "They feed to vast weight, but are thought less profitable, both for the breeder, the dairy, and the grazier, than the true *Lancashire* breed."

About ten years after Mr. Young's Farming Tours, (from which the preceding extracts are taken) Mr. Marshall began his surveys of England, for the purpose of observing and registering every thing he should find important in the whole circle of husbandry. His information is the more valuable, because (having previously made himself a proficient in practical farming) he took up his residence for months and years in suitable stations of the several districts into which he arranged the various counties; and thus was the better enabled to compare the live stock and agricultural management of the several parts with one another—and, the ability and ingenuity displayed in his works, show him to have been well qualified for the undertaking.

Marshall very fully describes Mr. Bakewell's distinguished improvements in horses, cattle, sheep and swine.

He traces the origin of the *Leicester* black cart-horse to some mares imported from Holland; but the breed had, in the course of thirty years, been much altered in its form. "The long fore-end, long back, and long thick hairy legs, have been contracted into a short thick carcass, a short but upright fore-end, and short clean legs—it having been discovered, by men of superior penetration, that strength and activity, rather than height and weight, are the most essential properties of farm horses." "The most useful horse he had seen of this breed, he thus describes:—"

"His carcass thick, his back short and straight, and his legs short and clean; as strong as an ox, yet active as a pony; equally suitable for a cart or a lighter carriage—a species of animal which, if it were fashionable as human food, would be full as eligible, for a farmer's use, as an ox of equal strength and activity."—"Another comparative advantage of the present improved variety, over the great, loose, heavy, sluggish sort of this breed, is its *hardiness*; its thriving quality; its being able to carry flesh, or stand hard work, with comparatively little provender."

CATTLE. "The breed of this district is the long horned; which, though traced in the origin to Yorkshire, and thence to Westmoreland, yet having been introduced in Lancashire, has, from the latter county, received its distinguishing name. It had been improved before Mr. Bakewell's day; but he brought it to its highest degree of perfection." The following is part of the general description of its higher class of individuals: The fore-end long, but light to a degree of elegance; the neck thin, the chop clean, the head fine but long and tapering; the eye large, bright and prominent; the horns long, but varying with the sex; bull's from fifteen inches to two feet; oxen's from two and a half to three feet long;

cows' nearly as long, but much finer—most of them hang downward by the sides of the cheeks, and sometimes would touch the ground, were not the points occasionally removed; the shoulders remarkably thin and fine as to bone, but thickly covered with flesh; the girt small, compared with the short and middle horned breeds; the chine full when fat, but hollow when low in condition; the loin broad, and the hips remarkably wide and protuberant; the quarters long and level; the nache of middle width, with the tail set on variously, even in individuals of the highest repute; the thighs in general fleshy, but tapering towards the gambrels; the legs small and clean, but comparatively long—appearing so more from the greatness of the carcass, than the positive length of the legs; the carcass as nearly a cylinder as the natural form of the animal will allow; the ribs standing out full from the spine—the flesh seldom fails of being of the first quality; the hide of a middle thickness; the colour various; the fattening quality indubitably good. "As grazier's stock they undoubtedly rank high—as dairy stock, however, their merit is less evident. Dairy women here and elsewhere bear witness against them."

Mr. Marshall remarks, that the protuberance of the bones of the hips was a point of the first fashion; but says, it was always mentioned in the language of *enthusiasm*, not of reason: that a wide loin, with the hips protuberating in fat, would be a most desirable thing—but that two knobs of bone can be neither ornamental nor useful. And he thinks it probable, that both in this and the short-horned breed, points of real importance have been given up for those fashionable knobs of bone.

He thinks as beasts of draught, this breed is not eligible—and that the enormous size of the horns of the oxen would invalidate all their qualifications, as working cattle, were they greater than they really are. In conclusion he says—"The utility of form has been strictly attended to; the bone and offal are small; and the fore-end [head and neck] light; while the chine, the loin, the rump, and the ribs, are heavily loaded—and with flesh of the finest quality."

In 1788, Mr. Marshall published his *Rural Economy of Yorkshire*. The prevalent breed of cattle, at that time, in the Vale, was the *short-horned*—originally a very clumsy breed; but it had been greatly altered and improved, "not by foreign admixtures, and unnatural crossings, but by choosing the cleanest and best fleshed bulls and heifers from among their own and their neighbours' stock."—But he says "a variety new to the Vale was then crossing into it—the *Tees-water* breed—a variety of the short-horned species. It was established on the banks of the Tees—and appeared to be a most valuable breed of cattle—valuable to the grazier and butcher: the bone, head and neck fine, the chine full, the loin broad, the carcass throughout large and well fashioned."

"The favourite points of a milking cow in the Vale, are a thin thigh; a lank, thin-skinned bay, and hanging backward; teats long, and sufficiently free of milk without spilling it; dug veins large, and horns yellow. I will not vouch (says Marshall) for the infallibility of all these points; but this I will say, that I never noticed a cow with a thick fleshy thigh, which was a good milker."

Mr. Marshall describes the *Sussex*, *Devonshire* and *Herefordshire* breeds, as agreeing in almost every essential character. The famous cow of Mr. Cramp of *Sussex*, in England, was of the *Sussex* breed. In five years (1805 to 1810 inclusively) she yielded 24,428 quarts of milk, from which were made 2725 pounds of butter, averaging 545 pounds each year—a small fraction less than 9 quarts of milk yielding a pound of butter. She usually gave milk till within two or

three weeks of her calving—sometimes till she calved. Her food was abundant, succulent, and of various kinds; given a little at a time; and enticing her, by the variety, to eat the more, and without waste.

In my discourse, read to the Agricultural Society of Essex, (which you republished in the American Farmer) I quoted from Sir John Sinclair, some of the opinions of that distinguished naturalist and practical Farmer, Thomas A. Knight, esq. in answer to some questions of Sir John. In one of his answers he says—"I have found the food animals generally require, to keep them in proper condition, is much more nearly proportioned to their *height and length* than to their *weight*." In confirmation of this opinion, he adds, that a neighbour of his made a comparative experiment with the Devon and Hereford cows; and, though fond of the former for their neatness, he gave them up, because "they would not nearly live on the same food which supplied animals *stouter and more compact*, of the same weight." To the question, "What is the best shape for feeding well [fattening] with little food?" Mr. Knight answers—"The more deep and capacious the chest, and the shorter and lower any animal is, relative to its weight, the better adapted it will be to live and fatten upon little food; the more labour it will also go through; and I have always found the most short legged oxen to be the best labourers. Mr. Marshall also observes, in his Rural Economy of Gloucestershire, that the best labouring ox he ever saw, had the shortest legs." Mr. Knight objects to the Devon breed, because too long and too high.

Mr. Marshall made his agricultural surveys, of the greater part of England, from the year 1780 to 1789; and in that period had seen and minutely attended to the various breeds of cattle in the districts he had visited—and gives the preference to the Hereford breed in the following words:—"The Herefordshire breed of cattle, taking it for all in all, may, without risk, I believe, be deemed the first breed of cattle in this Island." "In general appearance, the Herefordshire cattle resemble very much those of Sussex, except in their superior size; and still more, nearly the present breed of the Vale of Pickering, [the improved short-horned breed of Yorkshire before noticed] their frame is altogether *athletic*, with the limbs, in most cases, sufficiently clean for the purpose of travelling. The form of many of them, as beasts of draught, is nearly complete. Besides their superiority, as beasts of draught, and their being eligible as dairy stock, (being in this respect similar to those of Gloucestershire) the females, at least, fat kindly at an early age; the strongest proof of their excellency as *fattening cattle*. I have seen three years old heifers of this breed—to use a familiar phrase, "as fat as mud," much fatter than heifers of that age. I have seen, of any other breed—the spayed heifers of Norfolk excepted." "How unfortunate then [he exclaims] has been the choice of the spirited breeders [Bakewell and others] of the Midland counties! With a small share of the attention and expense that have been bestowed on the long-horned breed, some other breeds, he thinks, might have been rendered equally, or still more profitable, as milking and grazing stock—and at the same time, have been fit for the purpose of draught; a use for which, not the horns only, but their general frame unfits them. The breed of long-horned cattle, *naturally*, he says, is perhaps the worst the country ever knew. He adds, "The long-horned cattle, in a state of neglect, might, in figurative language, be called creatures without carcase; all horns and hide. With every assistance which genius and spirit can give them, they are barely, if at all, superior, even as grazing [fattening] stock, to other breeds which have remained in a state of comparative neglect."

Sir John Sinclair informs us, that a good Herefordshire bull sells for £60 or £70. One 4 or 5 years old for £40. A calf for £10 to £20. And that Mr. Knight refused 30 guineas, for a perfectly good calf seven weeks old.

In 1797, Mr. Marshall closed his agricultural surveys, with the Southern Counties of England. He mentions a patriotic work carrying on by Lord Egremont, with unequalled zeal, and on a broader basis

than that on which it had before been pursued, in any part of the Island. "His Lordship having no confined view to direct him, nor any narrow prejudice to warp his intentions, has blunted provincial jealousies by indiscriminately selecting from the three *kindred* breeds, of Sussex, Herefordshire and Devon, individuals of the first quality—and breeding from these as from one and the same stock, keeping steadily in view the three essential qualifications of cattle, namely, *Working, the Dairy, and Grazing*." Mr. Marshall predicts a lasting benefit from this plan—"there being no other established breed in the Island equal to those under notice, for the three essential purposes of cattle."—"If I rightly recollect, some of the gentlemen at Mr. Coke's sheep shearing at Holkham, (as published in the American Farmer) expressed opinions concerning the long-horned breed of cattle, similar to Mr. Marshall's—and in favour of the Herefordshire breed, as a better stock on which to raise improvements.

The Teeswater breed may, perhaps, have been much improved, since Marshall wrote: for Sir John Sinclair, in some of his works, written within six or eight years past, mentioned a bull of the short horned breed, which had been sold for a thousand pounds; [£1444.] and a heifer for a thousand guineas; [£5106.] and that one hundred guineas [£466 2s] were often given for a calf a month old, of the improved Teeswater breed of short horns. But I am inclined to think that *Fashion*, swayed by real or fancied beauty of form,—infinitely more than increased utility, raised any of the breed to these enormous prices. "Time was when a Dutchman would give two thousand dollars for a tulip root. In the admirable Journal of a tour and residence in Great Britain, during the years 1810 and 1811, by a French traveller (Mr. Simond of New-York) I met with the following remarks, on the Cheshire cows. Observing that cheese making is a principal object of rural economy in Cheshire, he says "There seems to be a great diversity of opinion, among the farmers of that county, respecting the best breed of milch cows, and the most promising make and colour. Upon the whole, it rather appears, that the *least handsome* are the best; a lesson of morality is thus furnished by the cow stable." Beauty of form, however, in a cow, is not incompatible with her being a good milker; although, as in a higher order of beings, it often gains admirers, to the neglect of intrinsic worth.

Upon the whole, I do not hesitate to express my opinion,—That of *NAT CATTLE* to be imported from England, the most improved Herefordshire breed is entitled to the preference—unless the stock patronized by Lord Egremont in Sussex, to be raised from an union of the Herefordshire, Devon and Sussex breeds, should answer to Mr. Marshall's high expectations, and can be procured.

I have gone so much into detail on the *principles* which have guided the most celebrated English Breeders, and in describing the *products* of their ingenuity and attention,—not merely to contribute to the instructions which it may be proper to give to the agent who may be sent to England to procure cattle; but also because these details may be useful in guiding the choice of individuals of our *native breeds* on which to build improvements. And I am not sure but that such selections might be made, by judicious agents who should traverse those of our states in which cattle form a principle object of husbandry, in reference to *labour, the dairy, and beef*, as would render of less consequence, importations from Europe. I have not met with an account of any English cow surpassing in valuable product that of Caleb Oaks, in my neighbourhood, for which the first premium was awarded to him at the Cattle Show, at Brighton, in 1816. In that year she calved the 5th of April [Editor's Note: see next article.] On the 8th of May the calf was killed, being remarkably fine and fat veal; and by the 20th of December following (32 weeks) her milk (after deducting about one quart daily for the use of the family) yielded 467 pounds of butter; and 17 lbs. while she suckled her calf. Yet she was considered, by some who viewed her, as below the middle size. Comparing her, in the succeeding year, with a large fine looking cow of

English blood, when I saw them feeding together in the same pasture, I should think the former would weigh but about two thirds as much as the latter; while the Oaks cow gave twice as much butter weekly: that is 32 pounds in two weeks; the cow of English blood only 16 pounds; both put, during the two weeks, upon precisely the same food, by way of experiment. Mr. Oaks gave his cow a bushel of Indian corn meal weekly, stirred morning and evening into her own skimmed milk. Mr. Cramp, in the summer season, fed his cow with clover, lucern, rye, grass, and carrots, three or four times a day, and at noon time with four gallons of brewers' grains, and two of bran mixed together; always observing to give her no more food than she ate up clean. In the winter season he fed her with hay, grains and bran mixed as before; feeding her five or six times a day; giving her food when milking. Mr. Cramp's great quantity of butter, annually was the product of the whole year: Mr. Oaks' of only eight months and a half.—Mr. Oaks' cow probably appeared the smaller to spectators, because of her low stature, her legs being short.

Marshall says, that in Gloucestershire "the *point* of a milch cow principally attended to, and which no doubt is the main object of attention—is a large thin-skinned hag."—A few years ago I asked an old observing neighbour, what marks determined his choice of a milch cow? "I look, (said he) to the *bag*; if that be *large*, and the *teats far apart*, I am satisfied."—The Oaks' cow has a large bag, and her teats are far apart—the natural result of a large bag,—particularly when extending forward, like hers, far under the belly.

I had like to have forgotten the Scotch Galloway cattle without horns, which are mentioned as an excellent breed. "They lay their fat upon the most valuable parts, and their beef is well marbled or mixed with fat." They are said to be "very good milkers, in proportion to their size, and their milk of a rich quality; yielding much more butter from a given quantity of milk than the short horned. And it is also said that the oxen and spayed heifers answer very well for the draught."

Marshall's description of this breed is as follows:—"The Galloway cattle are large, thick, short-legged, mostly hornless, and of a black or brindled colour: the flesh well grained; and the form altogether beautiful; chine full—back broad and level—quarter long and full to the nache—round barrel—deep girth—and the bone, head and chap, in general fine."—Among the numerous herds of these cattle, driven annually into England to be fattened, are some mongrels, the produce of crosses with some English breeds; effected, it is said, by the land proprietors—"but (says Marshall) the fact appears to be, that they have already one of the first breeds of cattle in the world upon their estates; and it behoves them to hand it down to posterity as pure as they received it. In this age of improvement, it might be laudable to improve it to the utmost; not, however, by foreign admixtures; but by giving the most beautiful females to the most beautiful males of their own breed. They appear to me to have much to lose, but nothing to gain, from crossing."—This last remark of Marshall, inclines me still further to think it advisable to search for the best of our own breeds, and from them to raise improved stocks: not to the exclusion of European cattle: though I am far from thinking the large breeds (which seem to be the general object of importers) the most eligible; except for those parts our country can furnish *rich grazing lands*. For the rest, cattle of moderate sizes would unquestionably be the most profitable.

The quantity of milk given by a cow, of any breed, should not by any means, be a guide in the selection, unless in union with its *quality*. Nine quarts of Mr. Cramp's Sussex cow's milk produced one pound of butter: whereas the best of the Lincolnshire breed (as mentioned by Mr. Young in his East of England) giving six gallons of milk a day, yielded only 7 or 8 pounds of butter a week; or at the rate of one pound for 21 to 24 quarts of milk. The Oaks' cow is extraordinary, not for the *quantity*, but the *quality* of

her milk. Mr. Quincy, to whom she now belongs, informs me, that he has often known one pound of butter to be made from five quarts of her milk.

As to sheep, I cannot think it necessary now to import any. We have merinos in abundance; and some of Bakewell's breed. From these and the finest of our native stocks, I have no doubt that judicious breeders might produce races adequate to all our wants and wishes.

I entertain the same opinion concerning swine.—It appears by the practice of the distinguished English breeders, that by judicious crosses of the best individuals, of same families, the forms and characters of all domestic animals may be so changed as to furnish all the desirable qualities which, in the nature of things, are attainable.—The great desideratum is, adequate encouragement, by high prices for highly improved animals—or establishments (like the one proposed which has given rise to these observations) in many of the states, under the conduct of judicious, industrious and faithful men, who should be authorized to dispose of the improved animals, at increased prices indeed, but such as would not deter substantial farmers from purchasing them. Farmers so established for breeding, might also be made patent

farm for agricultural experiments. And to ensure success, practical farmers of distinguished intelligence and fidelity must be allowed, in addition to reasonable compensations for the exclusive application of their time and faculties to the business, a certain portion of the profits on the sales of the increased stocks and of the time of the males not sold.

The numerous communications to the "American Farmer," especially from agriculturists who farm on a large scale; whose sole, or at least whose principal occupation consists in the management of their own lands; and from others addicted to agricultural inquiries and pursuits; and who manifest that spirit for improvements which now appears to be pervading all the Old States, where Old Grounds demand superior skill and management for their renovation, have already given to your paper deserved reputation; and I persuade myself that from the same sources, and your own persevering diligence and ability, it will be rendered of great and increasing utility to practical husbandmen.

I am, dear sir, with great regard,
your obedient servant,
TIMOTHY PICKERING.

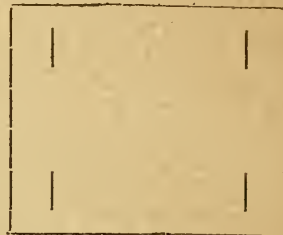
JOHN S. SKINNER, Esq.

SALTED HERRINGS GOOD MANURE FOR CORN.

Dear Sir,

I OBSERVE in the Farmer of the 10th, an experiment made on Salt, as a manure for corn; and, as the result is contrary to an experiment which I made, I send you an account thereof.

I made this spring 20 holes, one foot deep, and a foot square. Into the 4 first holes I put three inches of the dirt that came out of the holes—and then 4 rotten salt herrings of the year before; thus:



Afterwards, and alternately, 3 inches more earth, and 4 more herrings, until 12 herrings were put in each of these holes; in the next 4 holes I put only 8 herrings in like manner; in other 4 holes only 4 herrings—and on the next 4 holes, after returning the earth, I fixed 4 herrings on the surface: in the remaining 4 holes I only returned the earth, and then planted them all with corn. The next day I made 4 additional holes; manured them, and planted them with corn: when the plants were 6 inches high I drew the worst out, so as to leave 3 of the best stalks in each hill. The result now is—the corn on the hill containing 12, 8, and 4 herrings, and also on the manured hills, is very fine—that on those upon which the herrings were fixed, as well as upon those not manured, is but tolerable; and, compare with the other, in about the proportion of five to three. I was agreeably and much disappointed, as I was confident that the corn on the hills, which contained 12 and 8 herrings, would have been killed with the salt.

Your's very respectfully,
JOHN THRELKELD.

FOR THE AMERICAN FARMER.

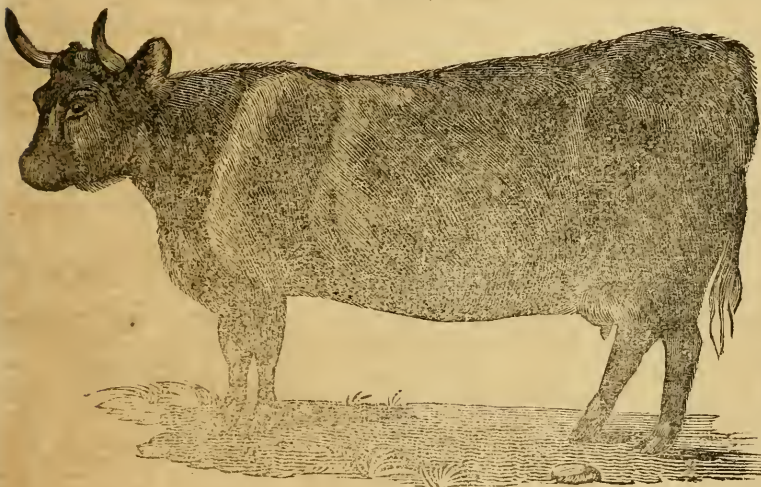
Agricultural Chemistry.

August 7, 1821.

MR. SKINNER,

I shall take the liberty of noticing a few expressions and opinions relating to Agricultural Chemistry, contained in your paper, from which false inferences might be drawn, and error the more readily propagated, from the well deserved high characters of the several writers.

Judge Peters, in his excellent "Notices for a young farmer," (Am. Far. vol. 1. p. 66) when speaking of the sorrel, says—"Lime is the only remedy; and you will see in Lord Dandon's Connexion, &c. the good effect of lime, which



THE DANVERS PRIZE COW.

[From the Mass. Agricultural Repository and Journal.]

LETTER RESPECTING THE DANVERS PRIZE COW—BY E. HERSEY DERBY, ESQ.

SALEM, December 25, 1816.

Dear Sir,

I FORWARD you, agreeably to the request of the Trustees, the information I have obtained respecting Mr. Caleb Oakes' Prize Cow.

The Cow is of a dark Red, and rather under size. She was first purchased out of a drove. Mr. Oakes bought her, in April, 1813, of his brother-in-law, at which time she was 5 years old. He made from her, the first year, without any extra feeding, 180 lbs. of butter. In 1814, he gave her about 10 or 12 bushels of meal, and made 300 lbs. of butter. In 1815, he allowed her 30 or 35 bushels of meal, and the quantity of butter made was over 400 lbs.

Last spring I called on Mr. Oakes, and requested him to keep a particular account this year of the product, in milk and butter, which he has been so obliging as to furnish me. She calved the 5th of April. The calf was killed the 5th of May, being remarkably fine and fat veal. Through the season she has had good pasturage, and has been allowed one bushel of meal per week, and all her skim milk. Some time in June or July, Mr. Oakes weighed the

milk—at which time she gave, at night, 10 quarts, weight 26½ lbs.—7 do. in the morning, weight 18 lbs. making 44½ lbs. of milk per day.

Statement of the Butter made this season.

Before the calf	July 17 16	October 2—16½
was killed, 17 lbs.	24—16	15—15
May 15—24½	31 16	21—16
22—16	Aug. 7—15	29—16
28—17½	14—15	Nov. 7—16
June 5—19	21—16	18—18
12—18½	28—15	23—10
19—17	Sept. 4—15	30—13
26—18	11—16	Dec. 10—14
July 3—18	18—12	20—10
10—17	25—15	
TOTAL,		lbs. 484½

Since Mr. Oakes has had the cow, she has suckled four calves, over four weeks each, and furnished about one quart of milk per day, for the use of the family. I purchased from Mr. Oakes some of this year's butter, I think I never saw finer.

I am, &c.

E. HERSEY DERBY.

Note.—December 28th, 1816; eight quarts of milk per day.

destroys the sorrel, and produces the sorrel line acid, highly friendly to wholesome and profitable vegetation. This is incorrect, both as to the action of lime, and in ascribing such opinions to Dundonald. Lime can produce no acid, but destroys all—and if the sorrel line or oxalic acid was present, the new compound produced by the application of lime, would be the *exaltate of lime*, to which I suppose Judge Peters meant to attribute fertilizing qualities. I have but little doubt of the correctness of this last opinion, but it is not sustained by the authority of Dundonald, who supposes the insolubility of *exaltate of lime* to render it incapable of aiding vegetation.

The "Treatise on Agriculture," ascribed to Gen. Armstrong, gives a method of analysing soils, which it states, was recommended by the French chemists, for the use of the farmers of that country. (Am. Far. vol. 1, page 171.)—This method is so stated, that if it is not both defective and erroneous, it is at least unintelligible to me, and probably to most of the farmers, for whose instruction it was intended. After separating the *finely divided matter from the sand*, and ascertaining their respective proportions, the former is directed to be "*calcined*," and "the quantity lost, will show the proportion of animal and vegetable mould contained in the soil." If the word "*calcined*" here means using a degree of heat, as great as that to which the term is frequently applied, the process would decompose the carbonate of lime, and the loss would include its acid constituent, with that of the combustible matters. To this calcined earth, and to the sand previously obtained, we are directed to "apply, separately, sulphuric acid, and what they respectively lose in weight, is the portion of calcarious, and aluminous earths contained in them. These last may be separated from the mass by soap lye, which dissolves them." Sulphuric acid, so far from removing calcarious earth, converts it into gypsum, and rather more than fifty per cent would be added to its former weight; and the greater the quantity actually contained in the soil, the less would appear in the result. What increases the confusion, is the direction to separate the calcarious and aluminous earths, by dissolving (both of) them in soap lye. It is usual to separate two substances, by adding some liquid which will dissolve one and not the other—but separation cannot be produced by subjecting both to the same action. I would gladly be informed what the test "soap lye" is, which is mentioned here, and in Davy's Agricultural Chemistry, without explanation. If it is the lye of wood ashes, the same chemical properties, freed from impurities, would be found in a solution of carbonate of potash, which will not dissolve calcarious earth, either before or after the application of sulphuric acid.

Dr. Muse, in his paper "On the modus operandi of Plaster of Paris," (Am. Far. vol. 1, page 338,) has presented ideas which have a greater value than that of merely being new; and the objections which he urges to all the elder theories, are fully sufficient to put them at rest. But I think he has failed to furnish a more satisfactory solution of this difficult question. His theory is, that "The chief, if not the whole cause of the efficacy of gypsum in pro-

moting vegetation, is to be found, in its tendency to become phosphoric. The truth of this proposition fairly rests on the result of three enquiries.—Does gypsum become phosphoric? Does phosphorus exist in vegetables? Do phosphates promote vegetation?—Let each of these questions be answered in the affirmative, and admit as correct all the authorities quoted, including even the unfounded assertion of Dundonald, that [all] "the insoluble part of vegetable ashes is phosphate of lime"—and still the theory will fall, by proving too much. If the value of gypsum consists in gradually changing to a phosphate, then the phosphate of lime itself applied in as small a quantity, would act as powerfully, and with more quickness; and it follows, that about three bushels of pounded bones, or four of drawn ashes, would produce as much benefit as two bushels of gypsum. As valuable a manure as phosphate of lime certainly is, I presume that no such effects as these are attributed to it. According to this theory, all these manures ought to be equally efficacious, or equally useless, on the same soils—yet in England, where bones are used most extensively, gypsum has not been found profitable; and in New-York, ashes are not worth using, where gypsum acts well, and are carried 170 miles to manure lands on which gypsum will produce no benefit. Again—all vegetables, and of course all soils are said to contain phosphate of lime; and whenever its presence can be detected by analysis, the quantity cannot be so small per acre, as a sufficient dressing of gypsum. As the action of the latter is not increased by applying more than three or four bushels per acre, it follows, that it never could act at all, if a greater quantity of another substance having the same powers, was always present. The phosphate of lime is known to differ from gypsum in this respect: it is most abundant in manured land, and yet Professor Davy, (as stated by Dr. Muse,) states that bones are found to be very beneficial, on the highly improved lands near London.

From the address of Robert Smith, Esq. to the Maryland Agricultural Society, (Am. Far. vol. 2, page 228) it would appear that *calcareous earth* forms a proportion of much the greater part of our soils. In all clayed, sandy, and gravelly loam, it is specified as an ingredient, nor is it stated to be absent in any. To most persons who are well acquainted with European descriptions of soils, the correctness of Mr. Smith's opinion will appear so certain, as to leave no room for doubt or inquiry. But I have strong reasons for being doubtful, unless it is sustained by carbonate of lime, having been found thus generally present, by the actual analysis of soils. If this is the case, Mr. Smith would render a service to the public, and add much to the force of his reasoning on calcarious manures, by furnishing an account of the compositions of such soils, as he may have ascertained. Your correspondents frequently, in general terms, have treated of the constitution of soils, and the different kinds of improvement suited to each; yet your three volumes do not present a single analysis of soil, nor does it appear that the least attention in this country has ever been paid to this very important subject.

THE RIGHT TIME TO FELL TIMBER.

WASHINGTON, Aug. 10th, 1821.

SIR—The hasty observations thrown together the evening before my departure for Norfolk, do not, I fear, contain all the information desired, with regard to the "proper season for felling timber, with a view to its durability;" indeed the subject is a fruitful one, and requires more investigation than circumstances will allow me to give it.

It is a subject of the utmost interest to mankind, and deserves the attention of the farmer as much as any other that comes under his observation. Exhausted fields may be made fertile—degenerated stock may, in a few years, be restored to their former excellence; but it requires ages to repair ravages of a few weeks on our forests, and we have hitherto unavailingly regretted the rapid decay of fences which confine our stock to the pastures, and protect that produce to which we owe our subsistence. The instant the tree is felled decay commences, and the lapse of a few short years requires that other trees should be destroyed to perform the offices to which the first were devoted. To subserve the purposes of man for the brief space of ten or a dozen years, we thus go on from day to day, destroying the work, which required nature centuries to perform.

The rapidity with which we now convert majestic forests into dreary wastes, the approach we daily make toward that condition of Europe, which makes economy in the use of wood, so necessary merits the consideration of all classes of men. If it is of importance to construct at great trouble and expense, ships, houses, machinery, fences, and farming utensils, surely the preservation of them is of equal importance, and it is worth inquiring at the outset, whether in consequence of the period of cutting the timber, of which they are made, the term of their duration will be either ten, twenty, thirty, or forty years; whether we shall have to renew these things three or four times during our lives, or hand them down in sound condition to our grand children.

The impairing of our forests is a national, the renewal of the articles an individual loss—we must look upon them as an indispensable means of national protection, and an important source of national wealth. Every waste of these precious materials is a voluntary destruction of an important source of future riches. A young and thriving tree is said to increase fifteen per cent per annum—to increase, too, without expense or cultivation; and if this be true, what can we find more profitable than a forest? We generally consider 6 per cent, a fair return for our money, and what farmer does not feel himself fully compensated by an interest of from four to five per cent, on his capital employed in farming purposes? It is well known that farmers cannot usually afford to pay legal interest on money borrowed.

A forest is the best inheritance a father can leave to his children; for, while all other property is diminishing in value, its value increases, by its natural growth, and by the materials which it furnishes, becoming daily more and more scarce, and of course commanding a higher price. A small tree which we cut down to make a single post for a fence, worth 15 or 20 cents, would in a few years form one of the largest timbers of a line of battle ship, and be worth, delivered at our Navy Yards, upwards of a dollar per cubic foot. A live oak arrives at maturity in about half a century. These important facts and considerations merit, as they have received the investigation of men of science. Chymistry and botany, may be both brought in aid, but to a knowledge of these, as I before observed, I have no pretensions, I rely upon facts universally known and admitted, and such as are familiar to men in every situation in life. Abstract researches I do not aim at, well knowing that I have neither the talents nor the time to make them.

In my former communication I gave my opinion as to the period best suited for cutting timber, with a few remarks as to its preservation, when applied to farming purposes. I now take the liberty to send you in corroboration of my views, a translation from a French Nautical Work, written by Lescallier—I do not know whether it has before been translated into our language, but the subject of which he treats, is as

interesting to the farmer as to the shipwright; and I believe that it will be perused with attention by most of your readers. In France, the subject has attracted more attention than in any other country; although, every government in Europe has enacted laws for the protection and preservation of the forests. But France, dependent as she was on her own resources, for the timber necessary to construct the Navy, which was destined to combat that of England, was driven to the necessity to husband them by every means within her power, so long as her adversary commanded the ocean, and had the forests of the world at command. France, by her system, has preserved the forests, and still continues to obtain her supplies from them, while for ages past, in England a venerable oak, most probably from its rarity, has been celebrated for affording protection to a king, or has furnished traditional lore for fairy tales—Hermes Oak is immortalized by Shakespeare; and Windsor Forest, of the size of a Pennsylvania farm, is the pride of England, and the subject of one of the most beautiful poems in the language.

Between 1636 and 1686 British timber became so scarce as to compel England to resort to foreign supplies, and it was in 1669 that France established those ordinances for the preservation of her Forests, which have continued in force ever since.

They require that all timber shall be cut between the 15th of September and the 15th of April inclusively, and the penalty for the first offence, by Proprietors as well as others, in violating this ordinance, is a fine of 300 francs and confiscation of the timber; for the second, the addition of six months imprisonment; and for the third, the punishment is discretionary with the king; and in all public cases, it is enjoined on the contractor that the trees shall be felled on the decrease of the moon.

My desire to answer your inquiries is my only apology for this second communication; and my wish to elicit further information, is my principal motive for making it. With sentiments of respect, your obedient servant,
D. PORTER.

ON THE PRESERVATION OF TIMBER.

By "Lescallier."

Timber is the first and principal material, without which it is impossible to have a navy: too much attention cannot be paid to whatever will improve the management, or production of this article, and above all tend to its preservation.

The preservation of timber is as essential as its very existence, for if ships cannot be preserved longer than ten years, the expense of continually rebuilding, would be enormous, and nature would finally cease to furnish those immense plants, which require centuries to grow, and are cut down in one day.

If there be any means to make timber last double the length of time which it commonly does, it ought to be employed, though it were an expensive one; for in that case, not only half the expense of building, and the greater part of that of repairing ships, would be saved, but the forests would be treated more sparingly, which is, in our opinion, by far more essential than the economizing of money.

Long ago, endeavors were made in different quarters, to discover the most proper method of preserving timber; it appears, however, that this object has not yet been accomplished in a satisfactory manner.—Timber, for the purpose of preserving it, has been put into fresh, into salt, and even into stagnant water; it has been interred in sand, in mud, and in spite of all these precautions, we see every day, to our great sorrow, that ships are rotten, before they have been of hardly any service, whilst other timbers last sometimes forty years. Some persons accuse the killers of the trees for not having observed the proper time of the moon, others laugh at the pretended influence of this planet and none of these opinions are universally approved. Researches ran only be made successful by following nature, from which we too often stray.

Timbers, cut in good or bad season preserve a great or small quantity of moisture. Some of it re-

mains especially in the interior of the logs, though the outside of them may appear perfectly dry, and after they have been kept for some time. This moisture, which derives its origin mostly from the sap, contains a great deal of acid, of a fermenting quality and consequently favorable to produce the rot.—It is this moisture which must be attacked and driven from the heart of the timber. Dryness alone will render it solid and durable.

We think it is by no means advantageous to the timber to lay it in the water, for the purpose of preserving it. Water is a dissolvent which in time penetrates and rots most things. Seawater, though possessing this quality in a less degree than fresh water, still has it in a great measure.

It has been observed that the British do not immerse the timber in water for the purpose of preserving it. It is the same with several other maritime nations, who use a great quantity of timber and possess considerable knowledge respecting it. We do not see that in the various foreign naval establishments, it has been thought proper to resort to this means. The best and most proper way, known at the present day, to preserve timber, appears to be that of keeping it under well constructed and airy sheds in a vertical position, so that the moisture, which remains in the interior of the logs, may in following the course of the fibres, be enabled to issue from the lower end.

We perceive that wood employed on land for beams in houses, and other objects, kept dry and under shelter, will preserve itself for ages. We likewise see pieces of furniture made of various kinds of woods kept still longer, because they are dry and under shelter; and because they are made of wood which the cabinet makers instructed by experience, took care to saw into thin pieces to let them dry a long time, and even get old, before they made use of them.

Why should not our ships, which are constructed of the same materials, last equally as long, or at least much longer than ten years?

We see the British construct the frames of their vessels, and leave them in that state, to dry a long time on the stocks, under the shelter of great awnings, before they finish them completely. Moisture destroys the timber, and dryness preserves it. If a vessel has been constructed in a hurry, with green timber, it will be found to be rotten before it has rendered any service; whereas if constructed with precaution and with the driest and oldest timber, it will last perhaps twenty years, without any other attention being paid to it than that of the ordinary and common kind.

Timber, not only rots when it has been used in its green state or exposed to humidity; but it is likewise injured by the effect of insects which find their way into it.

The cause of the destruction of timber in its primitive state, is the sap, a kind of acid fluid of a fermenting quality. Part of this fluid will always remain in the interior of large logs; and can easily be perceived when they are examined after being sawed through the middle.

When the wood is in its green state, water operates on it as a most powerful dissolvent. The atmosphere, fresh and salt water—all are respectively filled with different species of insects, inimical to the wood. They work themselves into it—know it and generate in it.

The water in which the timber is kept, will destroy one or two kinds of insects, but it often introduces others by far more dangerous.

Nature seems to be favourable to the decomposition of the sap in the timber immersed, but it substitutes in its place another kind of moisture, not less destructive, of which the timber, though afterwards exposed to the free action of the air, will not easily get clear. It weakens and destroys the grain of the wood.

If then the sap, the moisture in the interior, together with the insects could be disengaged from the timber, it would last for any length of time. This is clearly seen in some of the foregoing observations, and may be seen in many others of the kind, of which we shall only mention the most important.

The timber in hot climates under the torrid zone justly bears the title of incorruptible. One of the causes which renders it harder and more durable, is probably the continual heat in those climates which dries it quicker and with more effect. Without going out of Europe, what difference do we not perceive in trees of the same kind? what difference between the Oak of Provence, and that of Bourgogne,—between the oak of the dry, warm and mountainous country of Calabre and that which grows in the marshy land of Tuscany or the north of Europe? Some last at least as long again as others do.

When a tract of land is to be fenced in, the ends of the stakes which are to be fixed in the ground, are laid in the fire for a length of time; and thus completely dried, they never rot.

This custom is observed by the Russians, who are well acquainted with the nature of wood. In fact this is the only way in which they build their houses in the interior of the country. This process has likewise been applied with success, in the construction of vessels, to the heads of beams, which are much exposed to the effect of humidity.

When cabinet makers and carpenters wish to make good wood, they are not satisfied with having allowed the wood to dry a considerable time; but they dry it over again artificially near their fire.

The savages of America burn the ends of sticks to a point, and render them by this process so hard, that they answer the purpose of iron nails.

When any vessel or frigate is examined on her return from a cruise, the timbers nearest to the galley, dried by the action of the fire, will always be found to be excellent and perfectly sound.

The timbers from vessels that have been broken up, especially those of the hold, or other places under cover, have acquired a most excellent quality, and last sometimes much longer than new timber; a fact well known all over the world.

When we lay a piece of green wood in the fire we perceive a considerable quantity of moisture issuing from it, and when, after leaving it in an equal fire, without burning it, it is taken out in order to examine its quality, it will be found to be infinitely harder than it was before it was put in.

This operation with respect to navy timber ought to be made in a more precise and studied manner, namely, to dry it and destroy all interior principle of the rot, by the slow action of an equal fire, before it is piled away under sheds.

There ought to be built in every yard, a great oven square and flat, with several fire places underneath, in order to keep up a sufficient degree of heat, say of 45 to 48 degrees, to dry the timber very slow without causing it to crack. This oven ought to be large enough to hold a number of pieces of timber. They ought to be left in it, eight, ten, or fourteen days, more or less, as their size and dimensions shall require, or well made experiments direct. This process will drive out the air contained in the interior and extract the acquired moisture as well as the Sap, and render them sound to the very heart, by also destroying the worms or other insects, which may have found their way into them. Timber in this state, being less exposed to external injury, will probably last a very considerable length of time. Until it should be thought ready for use, it ought to be kept under sheds, which must be well aired from the warm and dry side, bearing always in mind, not to lay the pieces horizontally, but to place them in a vertical position; for in the latter case the moisture, if there should remain any in them, would issue from the lower ends, following the course of the fibres of the wood. In this state, being well dried, they might be painted or tarred with advantage.

The only objection that can be made to this project, is the expense which the process would occasion; however it is by no means so considerable as to enter into comparison with the immense loss, resulting from the purchase of new timber, from its uselessness after being worked up, and from the construction of vessels which are often condemned before they have rendered any service: an irreparable loss, which cannot be estimated by the value of money.

Moreover, the small building which it would be ne-

cessary to erect for the purpose, would cost but a trifling sum. It would be low, and would be built with very little mason's work. The maintaining of the fire would be attended with no expense, for the fire places could be heated with coal or turf, and the chips and the remains of old timber which may be found to be of no use in the yard could likewise be used. The total annual expense after the shed was put up would consist in the amount of two men's wages to take care of it, and a trifling sum for occasionally shifting the logs.

When we compare our method of preserving timber with that which nature and experience point out, and that adopted by various other nations, when we observe the inconsiderate destruction of trees, which might grow up for the use of the navy; our want of economy in felling and management of timber; the enormous waste in cutting into chips thousands of cubic feet; and lastly when we consider the number of young oak trees, which are cut down for fuel, and which in time might have become very valuable; we cannot help wishing that the management of this important interest was regulated by more correct ideas and principles.

FOR THE AMERICAN FARMER.

THE COST OF PROTECTING DUTIES.

The Analectic Magazine for March 1820, contains a review of the Memorials of the Virginia Agricultural Societies, and of Mr. Carey's "three letters to James M. Garnett, Esq." in reply to their objections to an increase of protecting duties. The memorials are reprehended with much asperity by the reviewer; and Mr. Carey's pamphlet is said to be "worthy the attention of all such as desire to form their opinions impartially on the subject." His writings have the advantage of being free from the crudeness and looseness as to statistics, that impair the value of so many productions of less experienced champions, of either side. "The advocates of manufactures have plainly the advantage in the field of argument, and have exhibited much more closeness of reasoning, and a far better knowledge of facts, the only kind of knowledge, that on this question can be very availing."

Mr. Ingersoll, by making this unqualified eulogium, has undoubtedly made himself responsible for the correctness of the arguments, statistical facts, and calculations, contained in Mr. Carey's pamphlet. The credit of the reviewer must stand or fall with the credit of the author. Mr. I. is indeed a formidable opponent of our Agricultural Societies: he is a reviewer—has assumed the high station of a censor general of science and literature, an arbiter of men of letters, and on those subjects, a director of public opinion. The very assumption of such high duties, is generally considered as some proof of ability for their performance; and it is therefore probable that the talents of the editor, are not so highly rated by the few who read his magazine, as by the many who do not. The mere expression of his opinion may be injurious to our cause—the arguments in support of it, (by shewing its very slight foundation,) may render us essential service. Therefore, it is of the utmost importance that the judgment and opinions of the reviewer should be held in proper estimation; and for that purpose, as earnestly as himself, I

recommend the attentive perusal of the subjects of his unmeasured praise, Mr. Carey's "Three Letters" and his voluminous "Addresses." Very many of these statistical facts and accurate calculations will be found illusory or false, and others present conclusions, directly opposed to what was intended;—one set of arguments serving to overthrow another, and to crown the whole, it is proved beyond dispute, (at the expense of five pages of "statistics" and "close reasoning") that the "experienced champion" and learned reviewer are so completely in the dark on the very subject on which they pretend to throw light, that they are unable to discover in what the protection of the manufacturers, really consists; and have fixed on the sum which they lose, for that which they gain! For the proof of this remarkable fact, I submit an abstract of the preface to Mr. Carey's "Three letters," (page xxxii to xxxvii, inclusive.)

"To investigate the foundation of the everlasting theme of taxing the many for the benefit of the few—and the immense debt of gratitude the manufacturers owe their fellow citizens, has become a duty. To place the subject on its true ground, will dispel a dense mist of error and delusion with which it is enveloped." "The whole pretence of this mighty debt arises from the duties on imported manufactures. Those on wines, teas, fruits, &c. of course form no part of it. Let us examine the account.

The entire impost for fourteen years, from 1801 to 1814 inclusive was	\$159,762,602
On Spirits, wines, sugar, salt, teas, coffee, and molasses	\$89,963,813
Sundry articles	7,470,317

Leaving a balance of	\$71,328,472
To which add half the last items of sundries, as probably on manufactures	3,735,158

Total on manufactures	\$75,063,630
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"This is the whole sum levied on manufactures of every kind, for 14 years, being about \$5,250,000 per annum!—The white population of that period averaged probably about 7,000,000. Of course the duties paid on manufactures amounted to about 80 cents per head! And this is the sum and substance of the "taxes levied on the many by the few," and the immense favours conferred on the few by the many! which have furnished matter for so many tedious speeches in Congress, tiresome declamations at public meetings, and verbose newspaper essays and paragraphs without number."

This calculation is curious enough;—the amount of duties paid into the treasury, is taken for the amount and cost of protection granted to the manufacturers. Thus, the more importation is restrained by high duties, the less protection would they afford, and when they amounted to complete prohibition, the protection of manufactures would not cost a cent!!!—But members of congress and newspaper paragraphists, are not entitled to the credit of having made such profound discoveries. Let the whole honour be paid where it is justly due—for I will venture to assert, that excepting our reviewer and his favourite political economist, no human being ever thought of measuring the

cost of protecting any manufacture, by the amounts of duty received on the importation of like articles. But the cost being thus estimated, it was important to reduce it as low as possible; and therefore a period was chosen in which were comprehended all the interruptions of commerce, caused by the embargo, non-importation acts, and the war with England. With the same accurate and "impartial views, a more particular estimate is then offered of the cost of protecting manufactures, for the year 1819, the intervening years, during which the amount of duties was immense, being judiciously skipped over, as they would have doubled the estimate of cost. According to this calculation the cost of protecting duties, for 1819, on all domestic manufactures, amounted to only \$8,131,318, "of which" says Mr. C. "the amount paid by the farmers and planters is not above $\frac{1}{2}$ of a dollar per head, notwithstanding the senseless and illiberal clamour by which their jealousy and hostility have been roused against their suffering fellow citizens."

It is inconceivable how so egregious a blunder could be made as to mistake the amount of tax received for the cost of protection to manufactures. Mr. C.'s own statement sufficiently exposes its absurdity—but as he has through five pages followed the back track, without being able to find the true scent of his game, or discover his error—and as he has been crowned by the reviewer with the "palm of logic," on account of this notable specimen of "statistics"—it will be a sufficient apology for my endeavouring to make the matter so plain, that it cannot possibly be misunderstood.

Duties imposed on imported manufactures, are according to their effects, either duties of revenue, or protecting duties. The greater part now existing, partake of both characters, affording some protection, and yielding some revenue; but the more effectual they are in one way, the less they must be in the other. When a duty is imposed, the imported article rises just so much in price, and allows the domestic manufacture to rise also. As the merchant may still afford to import and sell at the advanced price, the duty may still yield a considerable revenue, which according to the estimates quoted, would be the cost of protection to that particular manufacture. Suppose the duty to be gradually increased, until foreign goods can no longer be imported and sold as low as the domestic fabrics: the duty would then yield no revenue, and by Mr. C.'s calculation would afford no protection to the manufacture, at the people's expense;—but in truth the greatest possible protection would then be afforded, and the cost of the indirect bounty, would be the difference between the monopoly price of the manufacture, and the price at which such goods could be imported, if free of duty. In this case the rate of duty imposed would be the measure of bounty to the manufacturer, and of loss to the people; and the amount of duty received at the treasury, would be the gain of the people, (as they would otherwise have to make up the deficit by other taxes,) and of loss to the manufacturer, being so much diminution of a complete monopoly price. The following estimates will shew the immense

difference of result, in my mode of calculation and Mr. Carey's; although by his own account, the bounty paid for one years protection of manufactures, (\$8,138,318) is sufficiently great to cause what he calls "*the senseless and illiberal clamour*" of the farmers, at whose expense it is paid. The sums which I shall state, are suppositions, but the principle is the same, whether they are too high or too low. The duties (and of course the indirect bounties) are certainly put low enough to escape censure, on that score.

Suppose the annual consumption of cotton manufactures in the United States, to be equal to \$30,000,000—that a duty of 10 per cent would give no protection to the home manufacture; and that the whole would be imported: that 20 per cent would operate as a partial protection, and diminish importation one half—and that 30 per cent would prohibit importation, and completely establish the home manufacture.—The different columns of figures below will shew the annual amount of importation, manufacture, rate and amount of duties, and the annual cost of protection, by both modes of calculation.

RATE OF DUTY.	AMOUNT OF IMPORTATION.		AMOUNT OF MANUFACTURE.		AMOUNT OF DUTY.		COST OF PROTECTION BY MR. C.'S SYSTEM.		REAL COST OF PROTECTION.	
	10 per ct.	\$30,000,000	none.	none.	\$3,000,000	none.	\$3,000,000	none.	\$3,000,000	none.
20 do.	5,000,000	15,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000	3,000,000
30 do.	none.	30,000,000	none.	none.	none.	none.	none.	none.	9,000,000	9,000,000

At this rate \$9,000,000 would be the annual cost of protecting the Cotton Manufacture.

nual consumptions, and as such I will take it as the basis of another calculation of the cost of protection. A large proportion, say one third, would be of articles which require no protection, and leaving them out, as unnecessary to the calculations, let us suppose, that on the remaining 200 millions, a duty of 5 per cent would afford no protection—that 10, 15, and 20 diminished importation, and increased manufacturing as stated in the table—and that duties averaging 25 per cent, were exactly equal to the complete protection of domestic, and prohibition of foreign goods.

Rate of Duty.	Amount of Importation.	Amount of Manufacture.	Amount of Duties.	Cost of Protection by Mr. C.'s estimate.	Real cost of Protection.
5 per ct.	\$200,000,000	none.	10,000,000	13,000,000	none.
10 do.	150,000,000	50,000,000	15,000,000	15,000,000	5,000,000
15 do.	100,000,000	100,000,000	15,000,000	15,000,000	13,000,000
20 do.	50,000,000	150,000,000	10,000,000	10,000,000	30,000,000
25 do.	none.	200,000,000	none.	none.	50,000,000

This shews that the cost of completely protecting the manufactures required for our consumption, would amount to \$50,000,000, annually, provided 25 per cent duties, (much less than the present actual rate) would effect the purpose. But perhaps 40 per cent would not be sufficient; and it is owing to that circumstance alone, that the treasury is not actually as empty, as the last place in my column of duties.

In the above tables, the column of manufactures is fixed at the fair value, or what foreign goods might be sold for exclusive of duty—which amount added to the opposite sums under the head of 'Real cost of protection,' will shew the selling or monopoly price. Though they are both blended in the purchase, they are here placed in separate columns, as the price is in fact compounded of these two different ingredients. The duty paid to government, and the bounty indirectly paid to the manufacturers, are also placed apart: adding them together

will shew the whole burthen on the people, under each rate of duty. But in the case where the revenue fail, the same payers of bounties, must be also the payers of direct taxes, equal to the wants of government.

Enough has been said to display the critical acumen, and "*statistical knowledge*" of the editor of the *Analectic Magazine*, and to shew that the Agricultural Societies are in no danger of sinking under his attacks. They have nothing to fear from the Edward Ingersoll, that God made—though some apprehension might have been justly entertained of the reviewers that Moses Thomas made.

The enormous amount of bounty paid by the people for the protection of manufactures, as stated in these tables, may appear incredible, when the 'starving' condition of the manufacturers is considered. This difficulty is easily solved. The whole difference between the *real value*, and the *monopoly price* of any article, is indisputably a bounty paid by the consumer, as he receives no consideration whatever in return: but to the manufacturer, it is no more than the fair price of his labour and expenditures, and sometimes even less; because two labourers in Europe, or half a dozen in India, may be employed as cheap as one in the United States. If the manufacturers were enriched, as much as the farmers were impoverished—however every principle of justice might be violated, the national wealth would remain the same. But the effect of the system of monopoly and restriction, is invariably to rob one class of a large sum, that another may receive a smaller; and a loss accrues to the nation, from every transaction of trade.

By way of illustration, let us suppose a direct bounty of \$1 per lb. was offered by the legislature of Pennsylvania, for all the cotton raised in that state. If that sum would be sufficient to compensate the extraordinary labour and expense attending the culture, no doubt cotton enough would be raised for the full supply of the manufacture—but if it did not exceed that compensation, the former would make no more profit, by cotton at \$1 per lb. than by wheat, rye, potatoes and onions, at the usual prices. Yet it is evident that the state would lose 90 cents of every 100 thus expended.

Though I do not myself approve of this project of raising cotton by hot-house culture, it is admirably suited to the doctrines of the political economists of Pennsylvania, and as such, I earnestly recommend it to their serious consideration. If the measure was adopted, their principles would be brought fully into practice, and their own state would reap the whole benefit. All their arguments in favour of forcing manufactures, will apply as well to the forced culture of cotton: for instance, it would afford full employment to the labour of the state, and in that consists national wealth: it would turn the balance of trade, between the southern states and Pennsylvania, so entirely in favour of the latter, that it must speedily be enriched and the former impoverished; and though the crop of cotton would cost the state, ten times as much as it might be bought for, that is not worthy of consideration, as the whole sum would be paid and kept at home; it would really be \$10 kept, in-

It is stated in the "Three Letters, &c." (preface, page xviii) that if our manufactures had been adequately protected, the value of their annual production would now be \$300,000,000. That sum must then be the amount of our an-

stead of \$1 sent out of the state. If my scheme should find favour in the eyes of the philosophers of Philadelphia, the only reward I ask for the suggestion, is, that they will exercise the bounty system at home, and leave the other states and their balances of trade to regulate themselves.

To oppose the advocates of monopoly and restriction, is a labour equal to the greatest performed by Hercules. The enemies of free trade, cannot be compared with the Nemæan lion, the many headed Hydra, nor even the robber Caucas: for the destruction of these, it was necessary to encounter resistance, the most formidable and desperate. Our labour is to cleanse the stable of Augeas, filled with the ordure of 30,000 oxen, which requires neither demigod nor hero, but patient, endless drudgery. We can attack any part of the work, and shovel it off with the utmost facility—but the multitude of full fed beasts "with every tail uplifted," will continue to replace the filth as fast as it is removed. Throughout the voluminous publications of the advocates of restriction, it would be in vain to search for any thing deserving the name of argument. They deal in broad assertions and flat denials—state premises to suit themselves and then jump to conclusions, at which they could never arrive in any other way. Doctrines "which have been refuted times out of number," are advanced with as much boldness as self-evident propositions, and the falsehood which is exposed to-day, will be brought forward to-morrow, as a truth which had never been denied. Contending with such writers, is like contending with shadows: their *nothingness* is their best protection.

A SOUTHRON.

ORCHARD GRASS AND CHICORY, GOOD SUBSTITUTES FOR CLOVER IN THE SOUTHERN STATES.

From the Southern Patriot.

CHARLESTON, 25th April, 1821.

Mr. Editor—I leave at your office a sample of the Orchard Grass, which, from my trials, appears well worthy the attention of our planters; especially for a Winter and Spring Pasture. The seed was planted in February, 1820, and the grass was but little affected by the severe cold during the late winter and spring. Those feeling an interest relative to the value of this Grass, are referred to Judge PERKINS' letter, in the 2d volume of the American Farmer, who remarks—"I dwell much on the *Dactylis*, because I know its value; having constantly sown it for a period of 40 years. All beasts are fond of it, both as pasture and hay.—It is permanent, whilst clover is short lived. It grows in the shade luxuriantly; and hence it is called Orchard Grass.—The English name is Cock-foot. Any soil is suitable, if not wet. A sandy loam of good staple is the fittest." If any of our planters are desirous of having a pasture, which promises to afford a great quantity of food for *Sheep*—the *Chicory*, which is much extolled in England, as yielding the greatest quantity of grass for these animals, is recommended, as appearing to answer well in our climate, and producing much food: It is not killed by frost till late in the winter—vegetates early in March; and would now afford a fine pasture for *Sheep*. It is said to continue to yield well for many years.

RUSTICUS.

NOTE.—19th May, 1821.

Upon the 16th of May I cut one row of the orchard grass, 16 feet long, which weighed seven pounds in

its green state, and when well cured into hay, one pound. Being planted in rows two feet apart, it yielded at the rate of more than 9300 lbs. of green food; and 1361 lbs. of good hay at this cutting—the land is rich high land; and the grass was cut down, till the 20th of March. One row of the *Chicory*, 24 feet long was also cut, which weighed more than 12 lbs. of green food, this being also planted in two feet rows, has produced at this cutting, at the rate of 10,884 lbs. per acre. This grass being principally intended for *Sheep* I did not attempt to cure it, but, will observe that *Horses* kept up (and all working *Horses* should be) eat of this grass greedily. I know not if the cured hay of the orchard grass, was a bad turn out or not, viz. to 7 one, but presume, if the grass had been suffered to stand longer, and we had not had so much rain, it would have produced more hay than this proportion.

R.

On the 16th July, 1821 The *Chicory* was cut the 2d time, and produced seven pounds, or at the rate of 6349 lbs. per acre: The Orchard Grass was also cut on the same day—this was six pounds, or at the rate of 8166 lbs. of green food per acre. When well cured into very fine hay it weighed one pound, and one eighth, or at the rate of 1531 lbs. of dry food per acre. So that this made less of green food than on the 16th of May, it turned out more of cured hay. From seventeen months culture of this grass, I must conclude, it would be of essential benefit to a southern planter, as a winter, and spring pasture. As yet, our summer has not affected it; and, it is now in a fine growing state, that, which was cut early in May, is as good as that which was not cut since the 20th of March. It appears to answer well, in this State, to cut it every two months, or, to have it eat occasionally with stock. The *Chicory* was not affected by the season, either last summer or this.

R.

Mechanics—THE CIRCULAR SAW so far as I know, is a recent invention, and certainly a very useful one. The Shakers, at their village in Watervliet, near Albany, have this in very excellent use and great perfection. In a saw mill they have a set of machinery on this principle, erected at a very trifling expense, which in cutting stuff for window sash, grooving floor plank, gaging clapboards, &c. with one man and a boy to attend it, will perform the labour of 30 men.

But I saw a new and novel machine in operation in this house, (so full of ingenious machinery) which deserves a place among the most useful discoveries in mechanics of the present day. It is a circular buzz, of thin, soft sheet iron, 6 inches in diameter, which cuts the hardest steel almost with the same ease that it could cut tallow. The buzz is well secured with cotterels on an axis turned by a band, and moves with inconceivable velocity, and the engine is so constructed as to secure in a proper position, and bring into contact, whatever you wish to cut. A steel saw mill saw plate was placed in the machine, having the old teeth all taken off, and in four minutes it cut with perfect accuracy 11 teeth—or half cut—for in order to finish the cutting, the saw must be turned in the machine, so as to come work-wise for cutting the other half. With a machine of this kind in perfect order, I should say that the old teeth might all be cut with an old saw mill saw, by a perfectly strait line, and a new set of teeth cut and gaged perfectly, in less than an hour. The cutting is done so accurately, that very little filing is necessary to complete the dressing of

the saw for business. The operation of this machine is a sort of phenomenon in mechanical philosophy.

I saw it in operation in July, 1817, and immediately sent a description of it to the publishers of the new Cyclopaedia, but I do not know whether it has been published. The shakers considering the discovery too useful to be monopolized by a patent, consented to my giving it publicity as public property. Like most others, this discovery was made by accident.—A piece of sheet tin nearly round, was put into a lathe, and a file applied to the edge, in order to dress it down to a perfect circle. The file had no effect on the tin, but the tin cut the file, as in other matters it often happens that the biter gets bitten. Learning this fact, an ingenious young shaker, Freegift Wells, tried the experiment, succeeded, and constructed the machine which I saw. I applied to it pieces of old files, and it cut them in two almost as quick as a candle could have been cut with a hot iron.

[Ballston Farmer.

THE FARMER.

BALTIMORE, FRIDAY, AUGUST 31, 1821.

PRICES CURRENT.

Flour from the wagons, \$5 12½—Whiskey from do. 27 cts. exclusive of blbl—Wheat, white, 95 to \$100—Red, 88 a 93—Corn, 40 a 42 cts.—Rye, 40—Oats, 13 a 20—Hay, 12 a \$14—Live Cattle, \$5 a 6 50—Codfish, per quintal, wholesale, \$3, retail 3 50 a \$4—N. England Beans per bushel \$1 12½—do. Peas, 75 cts—Flour in stone \$6 per ton—do. ground, \$1 35 per barrel, 35 cts per bushel, \$8 per ton—New-Orleans sugar, \$9 to \$12 50—Muscovado, do. 9 a \$12—American White Lead, \$12 50—Ground do. 13 a 14—Linsed Oil, 75 cts—Feathers, 40 a 45 cts—Shad, new, \$6—Herrings, \$2 a \$2 25, declining—Fine Salt, 55 cts per bushel—Ground Alum do. 35 a 60—St. Ubes, 60—Cadiz, 50 a 35—Turk's Island, 72—Beef, 8 to 10 cts—Hams, 10 a 12 cts—Middlings, 12 cts—Butter, 25 cts—Peas, 50 cts per bushel—Eggs, 12½ cts—Cheese, 8 a 10 cts per pound—Tar \$3—Turpentine, soft, 27 Cargo prices—2 ms. —Hard, 1 30 to 1 62½—do. credit.

Pitch 2 a 2 25—Rosin, common, \$1 37½ a 1 50—Varnish, 25 cts—Spirits Turpentine, 32 cts per gal.

Virginia and Maryland Tobaccos same as last report.—One hhd very fine fired Tobacco, Maryland, and brought \$25

THRASHING MACHINE.

JOSEPH HYDE, inventor of the straw cutting machine, which received a premium at the last Annapolis Agricultural meeting, has completed a THRASHING MACHINE, of 2 horse power. To give a description of this machine would be useless, as there are so many who boast of having the best for sale, suffice to say, it is simple and durable, not liable to get out of order, it has been attached to it a STRAW CUTTER and FAN, which is put in operation by the same power. It will be exhibited for 14 days previous to its being disposed of, in the hope of receiving further orders—should there not be a purchaser, he will send it on trial for 4 days (gratis) to any gentlemen in the state. It is so constructed, that a horse can move it from one part of the farm to the other. Farmers not having large quantities of grain to thrash can have the use of this machine at so much per day, or so much per bushel for the quantity thrashed—Price THRASHING MACHINE, \$200—STRAW CUTTER, \$45—FAN, \$20. For particulars, inquire at

JOSEPH P. CASEY'S Seed Store, No. 2, Hanover-street, next to Barnum's Hotel.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL. III.

BALTIMORE, FRIDAY, SEPTEMBER 7, 1821.

NUM. 24.

AGRICULTURE.

It was our intention to have given a copy of the letter which, in consequence of an inquiry made by "A Farmer," in No. 20 of this vol., we addressed to Commodore David Porter, to ask the favour of his opinions, for publication "on the best time for felling timber with a view to its durability;" and as it has been hitherto inadvertently omitted, we will now give it, that our agricultural readers may remark how promptly information has been obtained for them, by simply asking for it, upon a subject deeply affecting their permanent interests as it is inseparably connected with their future operations; and that we may accompany it with this public expression of our thanks to the Commodore for his immediate and very gratifying attention to the wishes of our correspondent: nor will we withhold the remarks which this gentleman has been pleased to make expressive of his opinion as to the general usefulness, even of a single recommendation of the Commodore's.

The worthy author of the present enquiry, Mr. Roger Brooke, of Montgomery co. Maryland, has observed to us "that he was very much pleased by the early attention paid by our correspondent to the important subjects of felling and preserving timber, and that whatever he might be disposed to think of the lunar influence on vegetation, still did these papers contain nothing worthy of attention, but the reasons for plating the bark side of the rails upwards; he should himself believe that every one who has post and rail fences to make, would profit by adopting that plan and to an amount far beyond the cost of an entire copy of the American Farmer."

This enquiry may indeed be a fruitful one to every farmer. We have been much pleased and edified by the remarks already made upon it by the Commodore, and we hope to learn still more from him and others, touching these interesting subjects, as they present an almost unbounded range for useful observation and agreeable research.

The inquiry made by Mr. Brooke, was undoubtedly suggested by the lamentable waste of timber made, not only in former times, and in his own county, but even at the present day, and throughout these States.

Nor does he stand alone in calling the attention of our fellow citizens to this portentous evil; for many are they, who have forcibly deprecated its continuance, and pointed out some of the most obvious remedies; amongst others, we well recollect the admonitions of the late President of the United States, contained in the address delivered by him to the members of the Agricultural Society of Albemarle County, Virginia, as per the 23d No. 1st vol. Am. Far.

Copy of the Editor's letter to Commodore Porter.

Office of the American Farmer,
Baltimore, 5th July, 1821.

DEAR SIR,

Under the impression that "the proper season for felling timber, with a view to its durability," has been made, within the sphere of your official duties, the subject of particular investigation, I am induced to ask the favor of you to furnish me with communications on that subject, for publication, in my Agricultural Journal.

I would excuse myself for making this application, under the recollection that you are a member of our Agricultural Society, that you have given to its proceedings the encouragement of your patronage and personal participation, and that in the management of your own farm, you have paid the closest attention to

the various and interesting improvements, which are every day making in the operations, or, if I might so say, in the Arts of Husbandry. Very truly and respectfully, your obedient servant,

JNO. S. SKINNER.

To Commodore David Porter,
Washington.

THE BEST TIME TO FELL TIMBER,

With some remarks on the REPORT of the BOARD of NAVY COMMISSIONERS.

To the Editor of the American Farmer.

MEREDIAN HILL,
WASHINGTON, Aug. 10th, 1821.

SIR—"Nothing more true than what you once let fall," that every man, when he attempts to write on an agricultural subject, should write as though his readers were entirely ignorant of it, commencing at the beginning, and stopping at the end; but it is equally true, that every one should write as though all his readers were as well acquainted with the subject as himself—and where he makes known his sentiments and opinions upon one topic, there is no good reason why he should not express them on any other that may present itself to his mind. These truths were forcibly brought home to me in perusing an article on a report of the Navy Commissioners on the subject of Ship Timber, in the Literary and Scientific Repository of last month, published in New-York, which was yesterday, for the first time, put into my hands.

The Report was made in reply to certain queries proposed by the Chairman of the Naval Committee, and one among others, was as to the best means of preserving the timber, procured for the gradual increase of the navy. The words of the query, as near as I can recollect, (not having Mr. Barbour's letter at hand) are as follow: "Which is the preferable mode of preserving the materials of wood, by covering, or by immersion."

The Commissioners of course did not feel themselves authorised to do any thing more than to recommend a system, which, in its application, could be made general. The various modes usually resorted to for preserving timber, were examined in relation to their applicability to our different naval establishments, and it was found that none would answer as a general system, but the one recommended; to wit, *putting up the frames of our ships, and placing them under cover.*

The writer, however, of the article in question is not satisfied with this—he thinks the commissioners ought to have gone further, and he has himself supplied the deficiency in their report, by showing, in a very interesting manner, the time and necessary preparation for felling of trees, with views to their durability; and recommends salting as the best means of preserving our ships. Answers to neither of these subjects are called for by the committee; but, for his satisfaction, I beg leave to state, that neither are neglected by the Board. As to the first, the preparation recommended by him, it admits of many doubts: the second, the salting, has been practised from the commencement of our navy, to the present day, where ships have not been built by contract, and the sound condition of our oldest ships, is proof of its efficacy. It is an operation that cannot be performed, until the ship is planked inside and out, and caulked; the spaces between the timbers are then filled with salt, which is absorbed by the wood, and

completely destroys the acid of the sap, a chief cause of early decay. The query calls for information as to the best means of preserving timber, *not ships*; and although salting a ship on the stocks, would no doubt be highly beneficial, yet no one for an instant can think the practice so necessary, when a free ventilation can be had, as it would be in counteracting the effect of the heated atmosphere in the holds of floating ships, in which many instances have occurred of the total destruction of its vitality.

I beg leave to offer a few remarks as to the preparation recommended by the author of the article, which is "to strip the trees of their bark before felling." This he recommends on the authority of Dr. Plott, who wrote in the year 1691, and whose opinions are confirmed by Buffon in the year 1738.

The tree should be stripped, he says, in the spring of the year, and permitted to remain standing two or three years before it is felled, to give it time to season. In justification of this hypothesis of Dr. Plott, the "Royal Sovereign" (sometimes called the Sovereign of the Seas) a ship built in 1637, whose timbers forty-seven years after she was finished, were found perfectly sound, is mentioned; "so sound," says the historian, "that it was no easy matter to drive a nail in them"—he, the author of the article, then goes on to state, that in order to test the mode he recommends, the Navy Board of England, caused the Hawke Sloop of War to be built in 1793, one half of stripped timber, the other half of timber obtained in the usual way; and that in ten years afterwards she was broken up, when no visible difference could be observed in the timber, all of which, it is stated, was found equally decayed. Still, however, for the want of details, the author adheres to his opinions; and, notwithstanding the failure of an experiment made expressly for the purpose of trying this principle, places firm reliance on the suggestions of Dr. Plott, who wrote a century before—and this reliance on the opinions of the Doctor, seems more extraordinary, as one of the charges made by him against the Board, is their having recommended a practice founded on the best experience since the days of "Vetruvius," a celebrated Assyrian naval architect, who wrote on the subject.

The opinions of our ancestors are certainly worthy of being attended to, and practices coming down to us through many ages of experience, are entitled to our respect—they must carry with them intrinsic merit to secure their continuation. The practice of "Vetruvius" still continues; the hypothesis of Dr. Plott failed on the first experiment: but to come nearer to our own day, the Achilles was built in 1737, and the Montague in 1779, both of *winter felled* timber—the one opened in 1784, was found perfectly sound—the other is now in service. "The superiority of winter felled timber," says the historian, "was in them very evident, and fully acknowledged"—many, very many other instances could be cited from history, but our own experience for twenty years and upwards, is sufficient to justify the practice; for ships built of timber, cut during the summer, have invariably decayed rapidly, as is the case with the Java, Guerrier, Erie, Ontario, Peacock, Chippewaug, Boxer, Saranac, &c. &c.; while those built in time of peace, and chosen season, are now sound, and likely to be so for half a century more; such as the Constitution, United States, Constellation, Congress, &c. &c. The Board of Navy Commissioners, at the time of making the report, had been but five years in existence—it therefore ought not to be expected that a system for preserving timber could be formed on their own experience. The age of man is insufficient for this purpose; and that mode which, of all others, has

been longest in use, it was their duty to adopt—after a strict examination, they approved of it. Thus "Vetruvius" method of felling timber in the "winter season" is practised, and his recommendation to cut it "on the decrease of the moon," is also worthy of attention. It is hard, however, to persuade mankind that light, which cannot enter an opaque substance, can have an influence on trees: We should not, however, forget the innumerable experiments which have been made to prove, that it is to light they owe their verdure, and whatever may be the *modus operandi*, we cannot doubt, from daily experience, that light is as important as heat to the perfection of the vegetable world—Whether the presence or the absence of the moon is most beneficial is not the question; but only, what period of the moon is most proper for cutting timber.

The experience of the French, and the acknowledgments of the English, both founded on the method of "Vetruvius," are confirmatory of its correctness. Mr. Williams, in his elaborate Treatise on Dry Rot, says, "Most of the ancients, and some of the moderns, contend not only for the propriety of felling timber in the winter months—but they likewise maintain that the wane of the moon is most proper for this purpose." Hesiod, for example, informs us, that it was deemed improper to fell any timber for the purpose of ship-building, except on the 17th day of the moon's age, because, it being then in the wane, the sap or internal moisture, which is the grand cause of early decay, would be sunk, or, at least, considerably lessened. Vegetius extends the time, and allows, that if trees are cut down from the 15th to the 23d day of the moon, they will endure for a long time without perishing; but adds, if that limitation is transgressed, the daily practice and experience of all artisans may convince the world, it would become worm-eaten, or rotten, in so short a space of time, as to be almost incredible. And the order of the Emperor Napoleon, addressed to "M. M. les conservateurs, v. 18. Thermidor an 11," adverted to in my former letter, is evidence of the importance which he attached to it.

I beg leave to offer a few words on the subject of the Royal Sovereign, which the author of the article says, on the authority of Dr. Plott, was built of barked timber. Dr. Plott wrote in 1691, fifty years after the ship was built—Evelyn wrote in 1662, twenty-five years after she was built; and, as extraordinary pains were taken in the building of that vessel, there is no doubt that he (Evelyn) profited by the method then pursued—he recommends "laying up the timber very dry in an airy place, yet out of the wind or sun, and not standing up-right, but laying along one piece upon another, interposing some short blocks between them." But although it is asserted by Dr. Plott, that the timber was barked only, yet from various circumstances there is reason for believing that it was also notched around the body near the root—a process which, in its effect, would be very similar to felling the tree: be this however as it may—other causes for the durability of the timber, of which she was composed, existed. In the first place, she was built entirely of British oak—the durability of which is accounted for in the Report of our Navy Commissioners; in the second place, she was built of the *choicest* of British oak. Mr. Thomas Haywood, who viewed this ship frequently when building, says of her, "to the glory of our English nation, and not to be paralleled in the whole christian world—one thing (her timber), is particularly worthy of remark at least if not admiration, for one oak tree made four of the principal beams of this great ship, which was forty-four feet of strong and serviceable timber, in length, three feet diameter at the top, and ten feet diameter at the stubble or bottom end."

The subject of ship-timber, about that period, was better attended to, than at any other—it was in 1677 when Haywood wrote—Evelyn wrote in 1662—the French government passed their famous ordinance in 1669—in 1684 Dr. Plott wrote, and, at this day, all are quoted as good authority.

* 6th August, 1803.

The practice recommended by the Board, as to the preservation of Timber, is an improvement on the mode of Evelyn, and is in conformity with the manner of collecting the timber of the Royal Sovereign, "*a choosing of the best quality*" it is, in fact, their experience, founded on practice, since the days of "Vetruvius."

The barking of the trees, however, was not a consequence to the determination of building the Royal Sovereign. Tanners bark was much in demand at that period—whole forests were destroyed to procure it, and the necessity for using the trees which were left standing, first suggested, in all probability, the idea of building her.

The 2d of James, chap. 22, is an act respecting bark, as it relates to tanners, curriers, shoemakers and others concerned in leather in which for the better preservation of timber, the falling of trees for barking alone, is prohibited under severe penalties.

This act, it would seem, was evaded by barking the trees *standing*; and in Charles' reign other acts were passed to preserve the forests, one of which declares that "the destruction of wood tends to destroy the Commonwealth." It is a remarkable historical fact, that the charter of British liberties was obtained in consequence of a desire on the part of one Sovereign to destroy the forests or parks of England; and that the Navy of England should have owed its rise to a desire on the part of another to protect the forests against the depredations of his subjects.

The destruction of parks, and consequent destruction of game, by King John, caused the hostile array of the Barons of Running-mead; the barking of the trees by the subjects, for the purpose of tanning, caused those acts which were intended for the preservation of the game: both were for the gratification of a king—one to indulge his resentments against the supposed friends of the king of Scotland, who had married the daughter of the Earl of Bullen, without his consent, the other to indulge a passion for hunting.

By the 43d of Elizabeth, chap. 7th, it is enacted that "if any idle person cut or spoil any wood or underwood, poles or trees standing, and be convicted by the oath of one or more witnesses, if they cannot pay the satisfaction required, they shall be whipped. Receivers of wood so cut, knowing it to be so, to incur the same punishment."

The 2d of James I. chap. 22, is an act respecting bark, and lays heavy penalties on all who fall trees for barking, out of the barking season. The 15th of Charles 2d, chap. 2d, is an act to render the 43d of Elizabeth more effective."

I mention this merely to shew that the author was in error if he believed that the barking of the trees was an arrangement preparatory to the building of the "Royal Sovereign." It arose from the desire inherent in man to evade all oppression—a circumstance, then purely accidental, and of doubtful utility, should not be taken as our guide in preference to long tried experience.

My object thus far has been, as briefly as possible, to justify the course taken by the Navy Commission-

* Extracts translated from *Magna Charta of John*.

"Chap 44. Men who live out of the Forests, shall not be brought for any cause, before any Justices of the Forests, by common summonses, unless they are concerned in the cause, or are bail of those who are attached to the forest."

"Chap 47. All forests which have been afforested in our time, shall be immediately disafforested."

"Chap. 48. All the bad customs relating to forests and warrens, and foresters and wardens, and sheriffs and their officers, and wears and their keepers, shall be immediately enquired into, in every county, by twelve sworn knights of the same county; and within forty days after this inquisition being made, they shall be abolished, so that they shall never be revived, provided that they are first informed of it by our justiciary, if we shall not be in England."

"Chap. 53. But we will have the same respect and the same manner of exhibiting justice, of distressing forests, and of continuing forests, which Henry our father, and Richard our brother, afforded."

I beg leave now to dwell a little on the importance of preserving our forests. In my other letters I have touched on the mode pursued in France—in the present instance, I have shown in a slight degree, the importance which England has attached to her forests; but although your enquiry limited me to a particular point, as much as the Navy Commissioners have been limited by the enquiry of the Chairman of the Naval Committee, still I fear, like them, it will be expected of me that I should say *all* that can be said about timber, under all circumstances—this, however, would be too much to expect of you, if not of me; your paper belongs to Agriculture in general, and not to any particular branch of it. Besides, doubting my ability also to do the subject justice, I should fear tiring you and your readers. The subject is inexhaustible, and it is only in my power to skim the surface—the facts I give are from the authority of others, and I can claim no other honor than that of treating the matter fairly. I disclaim all pretensions to science—I deal only in common sense; let then, the *more highly gifted* deck their brows with laurel. I shall feel satisfied in removing prejudice by the establishment of truth.

On these principles, and on these only, I claim the indulgence of my readers, and shall endeavour, if my official duties will allow me, to go more fully into the enquiry respecting the importance of timber, and the best means of preserving it. If I quote authority, it shall not be of a doubtful nature; if I go back to antiquity, it shall be for historical facts only, and not for minute details of experiments made. For example, I do not doubt the fact, that the fleet commanded by Dullius, in the first Punic war, was at sea in sixty days after the timber was cut down, or that the Armado of 220 ships sent against King Hiero, was built and aloft in forty-five days after the timber ceased to grow; or that the fleet employed by Scipio, in the second Punic war, was at sea forty days after the fall of the timber, no more than I doubt that Philotas constructed Gallies 600 feet long, and 85 feet wide, on board of which were superb palaces; that those of Hiero were still larger—that Denny's of Syracuse built one carrying six thousand men, or that that of Caligula was of cedar with a poop of ivory enriched with precious stones. All these things are historical facts, and are no doubt, entitled to credit—but they are of no more use in the present investigation, than to know that Hannibal dissolved the Alps with vinegar. We have no more details of the practice of preparing the timber and its durability in the one case than we have of the process of dissolving stone in the other.

If we search history in vain to learn what is meant by two, three and four banks of Oars, how vain is it to look for that minute detail, which will enable us to comprehend the arrangement and structure of those extraordinary vessels, of which at this day with all our nautical experience, we cannot form an idea.

There can be no doubt that the ships built in the earlier periods of the British Navy, were more durable than those of the present day; but does it follow from this fact, that as we ascend in the scale of antiquity, they were still more durable? We certainly should not expect it in ships sent to sea in forty or forty-five days after the cutting of the timber—the durability of the British ships, may on well attested facts, be easily accounted for; that of the Roman Gallies cannot be credited. It is said that the timbers of one have lately been discovered in perfect preservation. It exceeds my belief.

A reference to the report of the Board of Navy Commissioners, will shew that the cause of the superior durability of the British ships, was the selecting of the best British Oak, cut at a proper season, and transported from the forest to the yard without suffering it to be immersed in water—holding it as they do, as an established truth, that dryness is favorable, and moisture unfavorable to the durability of timber—Whether this practice arose from accident or design, it matters not; such, however, is the fact, of which the most undoubted proof may be had.

This letter, sir, looks more like a defence of the opinions of the Board of Navy Commissioners, than an Agricultural Essay. I must beg you to pardon the digres-

sion—it has been called for, more by the erroneous impression which existed as to what they ought to have done, than from any thing they had neglected. Whatever relates to the preservation of wood, is an answer to your enquiry, whether it be for farming purposes or for the purposes of ship building.

Very respectfully your obedient servant,

D. PORTER.

FOR THE AMERICAN FARMER.

DOMESTIC MANUFACTURES BY MACHINERY—GREAT IMPORTANCE OF THE HOME TRADE, &c.

MR. SKINNER:

I begin to read your paper with indifference, for I begin to say to myself *cui bono*?—As I cannot sell what I make.

It appears to me that our statesmen do not sufficiently consider the change that has taken place within the last forty years as well in the other three quarters of the globe as in America. In the United States, we have increased from two millions of people, to ten millions—before the revolution, we had connexion only with Great Britain, and now with all the world.

The increase of commerce, and of communication, by printing, informs all nations, of the articles, producing the greatest profit, and also instructs them in the best mode of rearing them. Thus we find, a most rapid augmentation of gainful articles, and a fall of prices, in consequence of abundance, is annually announced in newspapers. Formerly, commerce was confined to a few towns, and to few merchants; consequently their profits were enormous. In modern times, foreign trade has become a very hazardous lottery kind of speculation, wherein very few draw prizes. The tobacco merchants have suffered so much lately, that our planters find themselves necessitated to ship their tobacco; thus, they must incur the expense of freight, of insurance, and the risk of foreign agency: and should ill success attend some of them, these must sell their slaves and property, and retire into the interior, far from a market, whence grain will scarcely defray the expense of transportation, and where the comforts of society, and the means of education are wanting.

If we examine the rises and falls of modern nations, we shall find that they depend upon the increase or diminution of internal manufacturing industry. If machinery can give to a nation equal to the productive labour of a hundred million of hands, think how handicraft business must be undersold, and how the nation that employs machinery can obtain the raw produce, and the specie and the stocks of another nation which does not use machinery: statesmen and financiers ought particularly to consider how machinery can be introduced and augmented in their own country.

Agricultural societies, are very beneficial when a middle class exists to convert the produce of the earth into useful articles, but unless the owners of the land find a market for every thing, an increase of their productions, reduces their profits.

It would require several pages to contain an enumeration of the consumable things produced by ingenuity and industry—let any one take a list of what is in his house, and he will be surprised at the variety: he cannot be clothed,

or comb his hair, or shave, or look about his room, without, finding what leather for shoes, what cotton, wool, &c. for stockings, pantaloons, &c. what skins for hats, and what dyes are required: let him look at his sideboard, and view the glass, the pottery, &c. &c.: let the agriculturists then consider, that if the makers of these did not exist, what would their farms be worth, and that the nearer the makers of these things reside, the less distance they have to send their produce, and the quicker their returns.

Visit a merely agricultural country, and you will find only a few towns, if they can be so called, at cross roads, composed of a tavern, a blacksmith's shop, and store, and perhaps a church, a lawyer's and a Doctor's house. Landholders possessing extensive tracts live scattered at a distance from each other, and have very little society.

Visit a manufacturing country, and all the comforts of life are in abundance, population is condensed, and social intercourse refined. The Historian, the Poet, the Novelist, the Mathematician, the Chemist, the Botanist, the Mechanician, the Painter, the Engraver, the Musician, in short, all who advance intelligence and afford delight are there collected.

We want the Middle Class very much in the U. States, and never shall acquire it by the present system. That we have been going rapidly retrograde for the last six years is, I believe, universally acknowledged, although we have increased in population.

You, sir have proved yourself a most zealous, assiduous and intelligent promoter of agriculture, and I wish you could induce each of our societies severally to appoint a committee to give reports on political economy; for I fear that we are too attentive to the one, and too negligent of the other. These committees would teach the agriculturists to consider, that they must no longer rely exclusively on exports, and imports, and that commerce is a trifling precarious resource, compared with a home market. In Mr. Sullivan's address to the Massachusetts society published in your 8th number, it is stated, that one man can produce on 10 acres, potatoes enough to feed one hundred.—Thus ten thousand men and one hundred thousand acres, could feed a million of persons—there must however be ground to feed cattle, sheep, and horses, and if we had a middle class, in sufficient numbers a great quantity of meadow land would be required, and the manure of these animals would enrich the uplands and increase our crops. The farmers would thus become rich and obtain resources to irrigate, and to make all kinds of improvements.

Were we all agriculturists how wretched we should be by excess of food, and the want of every thing else. It may be said that man would naturally turn to other employments. So I admit he would, and thus barter would be introduced. It may be also urged that exports would take place; but that I deny, if other nations prohibited the admission of our products. But to this it may be replied, we may buy and sell amongst ourselves; this also I deny, unless we make our own circulating medium, for a nation without mines, cannot have specie, but by the balance of trade.

If our societies had committees, as I propose, to make reports on political economy, our farmers from the interior when members of Congress, would know their own true interest, and be no longer deluded by the exploded doctrines of the French economists which, for a long time prevailed, producing much mischief. If Great Britain had only farmers, or had depended upon a specie currency, she would now have exhibited a mournful spectacle of fallen greatness, far inferior to our own; for her climate cannot produce corn, tobacco, cotton, and rice. I hope my brother farmers will be roused by distress to consider their true interests, by ascertaining how consumers may be increased.

Should you deem this letter worthy of insertion in your valuable publication, I will in another letter demonstrate how this country may surpass all others, having their present Governments.

A FARMER OF THE MIDDLE STATES.

ON THE HESSIAN FLY.

BY JAMES WORTIL.

Read before the Agricultural Society of Bucks' County, February 12, 1821.

Ordered to be published in the National Recorder.

SHARON, 1st February, 1821.

Sir—Having intimated to the society, my intention of furnishing a treatise on the Hessian fly, and in order to perform some service as a member of the committee, I will now exhibit such information as I am possessed of, touching that subject.

The Hessian fly, or (as classed by our distinguished countryman, Thomas Say,) Cecidomyia destructor, I understand first made its appearance on Long Island, in the state of New York, in the year 1776, and soon after the Hessians had been there; it was therefore supposed to have been introduced by them, among some straw, which it was said they brought from their country; hence the origin of the name "Hessian fly," or as that great and long-tried friend of agriculture, the honorable Richard Peters, observes, in his Notices for a Young Farmer, p. 29, the "appellation was bestowed during our revolutionary excitements; when every thing we disliked we termed Hessian." But it has since been ascertained, that no such insect has ever been known, in the country where those Hessians came from, and it is now generally believed to be a native of America. It appears by a paper signed James Vaux and John Jacobs, as published in the Columbian Magazine, vol. ii. p. 459, that in August, 1788, they went to Long Island, for the purpose of inquiring into the destructive effects of the fly, and they found that it had done such injury to the wheat crop in that quarter, as to induce a change of kind, so early as the year 1780 or 1781. The appearance of the insect into this country, and its progress for some years afterwards, is stated in a communication from Dr. Isaac Chapman, which was read before the society, at a stated meeting in August last, and under date the 28th November, he has favoured us with a copy of that interesting document, accompanied by some remarks on the proper time of sowing wheat, to which I beg the com-

mittee's reference, and also to a communication that I made to the Philadelphia Society for promoting Agriculture, dated 1st February last.* The latter was written without my having any knowledge of the doctor's observations, and contains some particulars respecting the insect, as occurred in the fall of 1819.—I will further call the attention of the committee, to a more scientific description of it, and a parasitic insect, the *Ceraphron*, that feeds on it, as written by Mr. Say, and published in the Journal of the Academy of Natural Sciences of Philadelphia, vol. 1, pages 45 and 63, accompanied with a plate by Mr. C. A. Le Sueur. It seems, however, that Mr. Say had not an opportunity of examining it in the egg state, and consequently has been mistaken in his conjecture respecting the manner and place of deposit.

I will now proceed with my history during the past year 1820. The fly evolved from its pupa or chrysalis about the 19th April, and deposited its eggs about the 24th; the deposit was made similar to that of last fall, except in some instances farther from the stalk. The insect generally chooses the weakest plants, avoiding those which are forward or well grown. This is accounted for, as it seems necessary to clasp the leaf, by placing some of its claws on the opposite side, in order to press the eggs into the gutter; hence there is a difficulty in managing a broad leaf; and in the few instances where I found it effected, the eggs were lain near the side or point, of course were more exposed to danger; and besides, the young caterpillar probably would not so easily make its way down the stem of a vigorous plant. It appeared to me, that many of the eggs of this brood were devoured by other insects, and that those which escaped, were hatched in the course of two or three days. The pupa state commenced about the fifteenth of May. It again entered the imago or fly state early in June, and generally deposited its progeny from the eighth to the tenth of that month; but I saw it on the twelfth, in all its stages, to wit, the ovum, larva, pupa, and imago—that is, the egg, caterpillar, chrysalis, and fly. The eggs were lain on the upper leaves of the weakest or stunted wheat, and in some instances on the under as well as the upper side, and the larva became lodged about the two upper joints, but most about the upper: this second brood is very numerous, and there being proportionally only a few plants that the fly seems to like, I have counted two hundred and eight eggs on a single leaf, and the caterpillars were in such quantities around the stalk, as to burst their covering, and thus become exposed to the depredation of other insects: they were generally smaller than those of the other broods, and many of the uppermost perished for want of food, the sap of the plant being taken up by those below; immense numbers, probably nine-tenths of the whole, were in some way destroyed—the busy ant appeared to be doing its part, but I may have mistaken the ceraphron of Mr. Say for it, (as I had not seen his description) or both may have been engaged in the work of

destruction. I am satisfied that some insect had deposited on the larva or pupa, as I found many in the latter state completely eaten up, and the case perforated by the parasite, and through the aperture I presume it evolved in its perfect state. In harvesting, some of the stalks on which the pupa rest are left standing; others, and the greater part are cut off—some of those thus cut off are so short as to be left strewn about the field, whilst the longer ones are bound up in the sheaves and carried to the stack yard or barn, and it is probably owing to the various situations in which the pupa is thrown, that the succeeding brood becomes so irregular, the deposit of which commenced about the 15th of August, but more abundantly made about the 25th, and continued on, in a less degree, till October, when those most early entered the fly state; and thus their ravages were carried on as long as the season would permit. I saw a few in the fields on the 25th of November; and in the house, as late as the 15th of December. It may then be said, that during the past year, there have been three complete broods, and partially a fourth.

I will ask the attention of the committee particularly to the June brood, as it has heretofore been altogether neglected, and is that which must especially be looked at, if ever we shall conquer this inveterate enemy. The idea of the insect having been introduced into this country among straw, has been treated as ridiculous, because the pupa was found too near the root to be dislodged in harvesting; but the brood under consideration is lodged near the top of the straw, and I have already stated, that a great proportion of it is actually cut off; and although the most of that which is gathered up is without doubt destroyed in the process of threshing the grain, yet some does escape, as proven by an examination in my barn yard, on the 20th of December last, where straw had just been thrown from the threshing floor. I there found some of the pupa in a state of complete preservation; and it might be carried to any distance, and when it is not exposed to a proper degree of heat, may be preserved a long time. I have now some in my possession which were gathered before harvest, and are evidently in a live state. I do not mean by this, to contest its American origin; that question seems to be settled, inasmuch as it is not known any where else.

In tracing the insect through the last year, I have found it a much more formidable foe than I had before imagined, and I have been mistaken in some of my former impressions—as in my communication to the Philadelphia Society for promoting Agriculture, I recommended early sowing. My opinion was predicated on the idea that the broods were deposited at regular periods, and completed in a very short time. As soon, therefore, as I supposed the August deposit to have been finished, which I concluded was about the twenty-sixth, I had a small lot prepared and sowed on the thirtieth, calculating that there would not be another deposit before October, and that I could guard against it by pasturing. In this I have been entirely mistaken; for the fly commenced

its operations on the wheat soon after the young plants appeared, and was continually followed by others, as long as the weather permitted; so that there is but little prospect of a crop. The wheat now growing in this neighbourhood has been sown at several different times, and, except the very late, has a good deal of the larvae of the fly lodged among it; and I fear that, should the spring prove unfavourable, much damage will be sustained: nevertheless, we shall have an opportunity of gaining some information as to the best time of sowing. The wheat that takes the earliest growth in the spring, will unquestionably fare the best, and hence the advantage of sowing and selecting the earliest kinds; and thus it is that rye succeeds. But we must not suppose that we can thereby entirely overcome the fly; for we should ever bear in mind, that it only prefers the weakest plants and a particular kind, and in case of necessity, will most assuredly attack the strongest and any kind, and probably even a different plant. Depend upon it, it will never starve while it can get any thing to eat. When I hear a person say that he has not suffered by the fly, I take it for granted that he has managed well, or that he has a neighbour that the insect likes better. How was it when the yellow-bearded wheat was introduced on Long Island, and afterwards into this county? It answered a good purpose to those who first procured it, but in the same degree it injured them that continued the old kind; and so I presume it will be with the Lolor wheat now trying in Virginia and other places: indeed I think it probable, that any new kind, of early spring growth, may serve a temporary purpose to him who first cultivates it, but it is, I fear, only a decent way of injuring a neighbour; nor do I find that any general advantage attends the not sowing next to a stubble field, for the wheat nearest thereto will be the most injured, whether it is along-sike or a mile off; but something will depend on the direction that the fly may be driven by winds, or obstructed by other circumstances: and with respect to pasturing, I will relate a case stated to me by my friend Anthony Taylor. Some years ago, on the twenty-third of April, he turned his sheep on a lot of wheat, and kept them there until scarcely a vestige of the plants was to be seen. It was supposed by his neighbours that his crop was entirely destroyed; nevertheless it soon recovered, grew in the most even and beautiful manner, and yielded upwards of thirty-five bushels per acre. The inference I draw from this experiment is, that it was most fortunately timed, and the wheat was so completely cut off by the sheep, that the fly had no place left to deposit on, and that the eggs of that brood were all lain before the plants had thrown up new shoots, so that the fly was compelled to pass into the adjacent fields; and his neighbours suffered by his good fortune; or it may have been that the caterpillars had not passed from the leaf, and were actually devoured by the sheep, and an abundant crop of wheat was the consequence; but in the former case it may well be questioned, whether the practice would promote the general good, and a further doubt

* See National Recorder, vol. iv. p. 63.

might arise, when we consider that there is such a wonderful disposition in some insects to secure the continuance of their species, that their sexual intercourse does not take place until a provision is made for their offspring, and therefore will sometimes remain in the fly state much longer than at others. Now in the spring, the Hessian fly appears to live only a few days; as the plants upon which it deposits being then in a state of rapid growth, there is no time to be lost; but if we were all to pasture our wheat, its existence would probably be prolonged until the plants became suited to its purpose; and by sowing it later in the season, an injury rather than a good would result, unless the pasturing was done immediately on the appearance of the spring deposit. I would then suggest the expedient of feeding the insect in the least expensive manner, that is, to procure an early kind of wheat, and sow it for the crop; then sow on the same ground about a hushel (perhaps half that quantity might do) to the acre of the common or late kind, for the fly. I have no doubt but it would select its favourite sort, and the only loss would be the wheat sown. It is asserted that sowing radish among turnip seed will preserve the latter from the ravages of a fly to which it is subject. I have not had an opportunity of testing its truth, but think it probable; and if such is the fact, it must be simply owing to a preference which the fly has for radishes, and there must be enough sown to supply food until the turnips shall have formed the rough leaf. It is truly astonishing what nice distinction some insects make in the choice of their food, and how difficult it is to force them from their favourite; and yet, when compelled to change, they are equally voracious in devouring the new plant, and in some instances afterwards prefer it. It will be perceived, that by sowing two kinds of wheat, over the whole field, and the fly preferring one, the destroying it would only thin the plants without injuring the crop; whereas sowing an equal quantity of one kind, would not answer the same purpose. But this expedient will be attended with difficulties; for it must be evident, that by sowing the two species together, a mixture of kind would take place, which would prevent our deriving any advantage from their separate qualities; consequently it would become necessary, continually to obtain seed from other places, or sow some of each sort on separate lots for that special purpose.

A difference however prevails as to the manner in which the mischief is produced, that is, whether it is done by pressure upon the stem, or by the caterpillar feeding on the juices of the plant; the former appears to be the prevailing opinion, and it is supported by many persons of the most respectable character; and if that point can be established, perhaps a kind of wheat may be found, that will resist such pressure; but it appears to me, that the indentation of the stem, is occasioned by the extraction of the sap, and in no other way can I account for the rapid decline of a young healthy plant; its growth is almost immediately stopped, and in a few days a change of colour takes place. I have never discovered

such effects to be produced on any plant, by mere pressure on one side; indeed in this case I doubt there being much pressure upon the stem, as the covering would, I think, be first loosened; having therefore no confidence in the doctrine of pressure, as here applied, I must leave to its advocates, the discovery of a remedy, and I wish them all possible success.

When the wheat fields make a good appearance, we are unmindful of the fly; and yet I believe, that every crop is more or less injured, and that even in a favourable season, the produce is, on an average, lessened one-fourth in quantity, and sometimes more than one-half. Shall we then submit to a devastation of such immense magnitude? Shall man, to whom was given "dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth," be robbed of his very bread, by so mean an insect? And besides, the brood which seems to be the very one that we ought to attack, is mostly destroyed for us, leaving only about one-tenth part for us to overcome. Nothing short of destroying or crippling the insect ought to satisfy us; but owing to our practice of finishing the course of grain crops with wheat, and sowing grass seeds among it, our purpose cannot be effected; and the wheat continuing to shoot up among the grass, for one, and sometimes two years after, offers food and safety to the fly. I will then propose to change the course of cropping; that is, commence with wheat, and immediately after harvest, burn the stubble and plough the ground, so as to prevent the insect from maturing; or perhaps a better plan would be, to plough the stubble, which would destroy the pupa by covering it in the soil, and would cause such a quantity of plants to spring up, as would be sufficient to receive the next deposit of such as might escape from the covering or come from other places; and by again ploughing, the larvae would mostly perish. And we must also use every precaution respecting the straw that is hauled out of the field. I would prefer putting it in a close barn, and covering it with hay, or something that would prevent the fly from evolving; but if it must be stacked, pay great attention to the plants, which may spring up from the scattering grains, nor must we forget rye and barley.

The reason why the early sown wheat does not succeed better, may in some measure be owing to its partial observance, and the fly being so much more numerous than the plants, such a quantity is lodged on each, as destroys the very roots; but a vast number of the larvae perish for want of food, and the more so if early sowing was entirely omitted, confining the fly to the stubble fields; for I have uniformly found, that the eggs are distributed, according to the quantity of plants that are in a suitable state. Now if we were all to sow early, I believe that such would be the small number allotted to each plant, that the roots would resist the attack; but as this is a matter which cannot, or rather will not be attended to by all, and as it would unquestionably have a tendency to nourish and increase the insect, it will most likely be safest to adopt the general practice of our neighbourhood, in sowing the

last of September, or first week in October; but on no account defer it later, for it is certainly of consequence, that the plants should be well rooted before winter sets in, and it has been remarked, that the latest sowing sometimes suffers the most, no doubt owing to its backward state in the spring, and I believe there is some advantage in having the grain well covered at the time of sowing, and this may be the reason why some choose to plough their seed in.* Next to the wheat crop I would recommend corn as the better to clean the ground, and then end with oats and grass; or if the present course should be preferred, omit sowing grass seeds among the wheat, and after harvest, burn or plough in the stubble as afore-mentioned, and prepare the ground particularly for a grass crop. I really see no other way of getting rid of this enemy, and I have thought much on the subject. If a better plan can be devised, I most heartily invite it, and I call upon every member of the committee, and upon every member of the society, to make the attempt. I by no means consider the case as fully developed; but I am persuaded, that if all who are interested, will attend to it properly, an ample remedy can be found; for although man is doomed to "eat bread in the sweat of his face," yet I firmly believe, that in every instance where he faithfully exercises the high powers with which he is endowed, he will be enabled to accomplish his utmost wishes. It is surely high time that something decisive should be done in the case now before us, and can there be a more favourable time than the present, when there are numerous societies formed in different parts of the country, all having the same objects in view, and by uniting in the same plan, could carry it into general operation, and thereby insure success? Now I want our society to take the lead in this very important work, not only as it regards the insect immediately under consideration, but all others which may be found so ruinous to the agricultural interests.

I will mention the locust (*Dicaea septemdecima*) as likely at some future period to destroy all our forest and fruit trees. The year before their last visit, I planted an apple orchard, which was so injured by them, that the trees generally became sickly, and I believe I should have lost the most of them, if I had not lopped off the wounded parts, and in some instances I found it necessary to take the whole head off. And when I reflect on the serious damage which has frequently been sustained by the ravages of several species of insects, I am led to believe, that under certain circumstances, our crops may be entirely cut off by them, and if not timely attended to, we may experience

* I have observed that plants having no depth of root were destroyed, whilst those having their roots sufficiently covered resisted the attack, and I presume the difference to be owing to the situation in which the grain is placed, because there is the dividing point betwixt the radical and plume, and, therefore, where the grain is well covered, the base of the stem will be below the surface of the ground, and the embryo bud which is prepared to throw up a new stock, being there formed, is protected by the soil; whereas the buds that are formed at the surface, are destroyed by the fly, and consequently the whole plant must perish.

the most dreadful of all scourges, a famine in our land. The insect tribe, though mean, is perhaps the most mischievous of all the animal creation, and when we consider its prolific nature, how careful ought we to be, to protect that link, which seems intended to keep it within its proper bounds; I allude to birds: I have already recommended them to the notice of the society, and I earnestly beg, that they may not be any longer neglected. Even toads and snakes are calculated to serve the purposes of man: and I must also recommend the more frequent use of that valuable implement of husbandry, the roller, not only for the better culture of our crops, but as destructive to insects. The late Mr. Bernard McMahon, speaking of the turnip crop, says, "the all important point is, that the rolling of the ground is experimentally found to be the most effectual method hitherto discovered for the preservation of the rising crop, from the destructive depredations of the fly. The turnip fly is always found most numerous on rough-worked ground, as there, they can retreat and take shelter under the clods and lumps of earth, from such changes of the weather as are disagreeable to them, or from the attacks of small birds and other animals."

Perhaps I have already been too prolix, and may have wandered far in the maze of conjecture; but on a subject of so great moment, I was desirous of throwing out every idea that I possessed, however strange some of them might appear, and as the inferences which I have drawn, are grounded on the premises laid down, every person can judge of their propriety, and none will be deceived by my errors. I submit my views to the examination of the committee, and rest, respectfully,

Your obedient servant,
JAMES WORTH.

FOR THE AMERICAN FARMER.

Annapolis, Aug. 13, 1821.

As vegetable oils are becoming a subject of inquiry in the United States, through the medium of your valuable press; I send you below the best account which has yet been published on the Sun-flower Seed Oil. It is a summary of an essay published in the transactions of the American Philosophical Society, by Dr. J. Morgan.

Yours,
JAMES BOYLE.

SUN-FLOWER SEED OIL.

The grinding of the Sun-flower Seeds, and expressing of oil from the same, is a manufacture, which, as far as can be yet learned, was first begun among the Moravian brethren at Bethlehem, and reflects honour upon them, whilst it affords the public a new substance very beneficial in a variety of purposes, but more especially as it may serve for a salad oil, and for other uses of diet and medicine, in the place of olive oil.

From experiments already made at Bethlehem, it appears that a bushel of the Sun-flower Seed will yield, on expression, near a gallon of mild

oil. The gentleman, who is appointed by the community there to superintend their mills, designs as we are informed, to pursue a further course of experiments on this subject, the result of which, we hope, will be communicated to this society.

Our correspondent at Lancaster informs the society, that some persons in the neighborhood of that place, have also expressed a quantity of oil from the Seeds of the Sun-flower.

His account is as follows:

The person, who has raised the greatest quantity of the Sun-flowers with us, informs me, that one hundred plants, set about three feet distance from each other, in the same manner as Indian corn is commonly planted, will produce one bushel of seed, without any other trouble than that of putting the seed into the ground; from which he thinks one gallon of oil may be made. I observed the land, on which he planted the Sun-flowers, to be of the middling sort, and that he took no pains to till them, or even to loosen the ground about them, which, from my own observation on some planted in a neighbours garden, I take to be of considerable use.

As the Sun-flower is a plant of great increase, and requires much nourishment; hilling does not seem so good a method as that of setting the seed or plant in a hole, and when the plant is about a yard high, to throw in the mould round the stalk, so that the surface of the ground may be even about it. By an estimate made it appears, that one acre of land will yield to the planter between forty and fifty bushels of seed, which will produce as many gallons of oil. The process for making or extracting the oil is the same as that of making linseed oil, which I make no doubt the society is acquainted with, and therefore shall not trouble you with it.

The success attending the trials already made, give the greatest encouragement to prosecute this useful discovery. And as the seeds of the Sun-flower are at this time nearly ripe, and in a proper state for extracting the oil from them, it may be of service to lay these facts before the public. Such as may have an inclination to make trials on this subject, and are not at present furnished with a sufficient quantity of seed for pressing out an oil, may now supply themselves with enough to plant for making experiments the ensuing year.

For the information of those who have both opportunity and inclination to extend the inquiry, and render this a valuable branch of business, but are not acquainted with the general principles upon which oil is obtained, by expression from vegetable substances, it may be proper to observe, that the kernels of fruits, such as walnuts, hickory nuts, filberts, almonds, peaches, &c. and the seeds of many plants, as mustard, rape, poppy, flax, Sun-flower, sumach, mullen, &c. contain a large portion of mild oil. In order to obtain the oil, the kernels or seeds are commonly rubbed to powder, or ground in mills. They are then put into a strong bag, made of canvass or woollen cloth, and committed to a press between iron plates, by which the oil is squeezed out, and is received or conducted into a proper vessel to

collect it. The plates of the press are often heated, either in boiling water or before the fire. Many heat the mash itself in a large iron pot, stirring it about with a stick or piece of wood, to prevent its burning, which, when it happens, greatly injures the oil, and gives it a burnt smell and taste, or disposes it to become rancid in a short time. When the oil is drawn without the assistance of heat, it is known by the name of cold drawn oil, and is more valuable than when heat is used, but it is not obtained in the same quantity. It is milder, and may be kept longer without spoiling.

In a cold season of the year, a certain degree of heat is absolutely necessary. But if the oil is designed for ailment or medicine, the plates of the press should be heated in boiling water only. When the oil is intended for other uses, the plates may be made hotter, as heat expedites the separation of the oil, and gives it a greater produce, but then care should be taken not to injure the subject by burning. Sometimes the subject, when ground appears almost like a dry powder. It is then said to be meagre, and requires to be exposed to the vapours of boiling water, which is done either by tying it up in a bag, or putting it into a sieve, and placing it over the steam. By this impregnation, it will yield its oil more readily, and in greater quantity. The oil may be easily freed from any water, that may happen to be pressed out with it, as a spontaneous separation between them will take place on standing for some time.

For the encouragement of those who may choose to improve this subject, it may be proper to observe, that all the oils, from whatever vegetable substances they are drawn, when obtained by expression with due caution, agree in their general qualities, and are constantly mild even though they are obtained from very acrid substances. Thus the expressed oil of mustard seed is, when fresh, as mild as that of olives, and the bitter almond, or peach kernel, affords an oil, by expression, as mild as that of sweet almonds. It is upon this principle, that the Sun-flower oil may prove equally valuable with the best Florence oil, for diet or medicine. For every expressed oil, when pure and fresh, is void of acrimony, and free from any particular taste or smell.

Besides the mild oil just mentioned, some substances contain another kind of oil, called their essential oil, a part of which may be drawn off, with the mild expressed oil, so called, and impart its smell or taste to that oil. It is called essential oil, from its yielding the particular odour of the vegetable, or part of the plant, from which it was obtained; it is pungent to the taste, and soluble in spirits of wine, which the other is not. They may, therefore, be easily distinguished from each other. The oil of sweet almonds, and the oil of olives, being pure unctuous expressed oils, not soluble in spirits of wine, but mild to the taste, and void of odour, very soft, emollient, and lenitive, are chiefly used in medicine and diet. And the reason why the oil of olives, in particular, is preferred, is because it is less expensive, and will keep a much longer time without becoming rancid.

Peas, on trial, the Sun-flower seeds may be found to contain an oil that will answer the like good purposes with the salad and medicinal oil now in use. If so, it will have this advantage over that of almonds or olives, that it is a native of the country, may be always had fresh and at a small expense. Whereas the others are the produce of distant countries, bear a high price, and are often adulterated on that account; or, being kept a long time, they lose their mild quality, and become rancid and acrimonious.

The practicableness of getting oil among ourselves at a moderate expense, and the importance of using it fresh, together with the probable uses of Sun-flower oil for varnishes, for the basis of ointments, and for mixing of paints, as well as other purposes to be answered by oils in general, claim our attention to this subject, and encourage further trials of the like kind.

ORCHARDS.

It has become proverbial, that "where an old orchard has stood, a young one will not thrive." This has been so frequently reiterated, that many of our good agriculturists have subscribed to the opinion, without taking the trouble to examine into it, and have accordingly neglected a very important source of profit and convenience.

It is a fact, much to be regretted, that the cultivation of fruit trees, in this country was much more attended to half a century since, than at the present time—consequently, with our increased population, fruit has become scarce, and a belief almost positively exists, that fruit trees will not thrive on old land. This question needs serious consideration, that our yeomanry may no longer take hypothesis for fact, when but one experiment would dispel the illusion.

We, however admit the fact, that trees planted on new land thrive uncommonly well, and many of them grow to a great size, while those planted on land that has been much cultivated and worn, have been very tardy in their growth, and as yet are but dwarfs in comparison with the former. Now we will endeavour to explain the reason of this admission, which we trust will at the same time throw some light on the art of cultivating fruit trees.

1st.—Trees, planted fifty or one hundred years since, were generally set on new land, highly enriched by the decaying vegetable productions, which had been accumulating, perhaps, from time immemorial. The richness of the soil would, without doubt, enable the tree to grow rapidly, and very abundantly explains the reasons of their monstrous growth.

2d.—An orchard set on the ruins of an old one, has not this vegetable manure to lend the aid that its predecessor had; consequently, it is slow in its growth, small and unproductive when grown, becomes mossy, dwindles and dies or is neglected as unworthy of the husbandman's attention; and the caterpillar destroys what the axe has spared. Our climate and soil are every way calculated for the production of fruit in its perfection and abundance, when only assisted by the fostering hand of art—and it is unreasonable to anticipate a harvest without previous

cultivation. In the early days of our country the earth needed only the seed to be sown to produce a rich harvest, for its bosom was enriched and softened by natural manure. The case is now different—it has been skinned by grandfather, father and son, twice or thrice repeated until its face is sadly wasted. Who is there among us, when allowed to think for himself, that would suppose a tree would grow when unassisted by art, on land thus impoverished? The farmer, who thinks of raising a good crop of corn knows well the necessity of softening manuring, and frequently stirring the earth—on this depends his success. Suppose he should say, with regard to his corn, as he does in fact of his trees, my great grandfather planted without hoeing or manuring, and was sure of the increase, and I will do likewise—would he not be styled a madman or a fool? Let the husbandman bestow the same care on an orchard, that he does on a field of corn, and he will be blest with the same abundant harvest.

To him who doubts the possibility of making a good orchard on old land, these few simple rules are enjoined, and we doubt not, upon experiment, his happy conversion to a truth that will increase his wealth.

I. Be sure that the roots of the tree be not below the soil. If the soil be shallow, bring it from another place, and throw it round the tree, in a sufficient circumference for the roots to grow in.

II. Prune the superfluous limbs and branches, and keep the bark smooth and clear from moss.

III. Suffer no grass to grow within ten feet of the tree, and twice in the year, spring and fall, loosen the earth in this circumference, and mix into it a full wheelbarrow load of rich manure.

The author is happy to state, that a few years' experiment upon this plan, on the ground of an old orchard, has convinced him that the principle opposed in this paper is without foundation.

VERITAS.

OUR OWN Agricultural writers entitled to be ranked with distinguished foreigners.

[From the Southern Patriot, Sep. 27th 1820.]

We complain that our Literary Productions are not duly appreciated in England, when we ourselves are mostly deserving of censure.

When an American publishes a volume, so little interest is excited, that if the expenses are defrayed and the author has incurred no expense, he has cause to congratulate himself upon the success of his work. With few exceptions, I fear this assertion will be assented to; and the little patronage bestowed upon several well written productions of our own State, both in Poetry and Prose, too fully justifies the charge of apathy, relative to the productions of American talents. But no sooner does an European favour the world with a work, though written without much judgment, or poetic genius than it is sought after with avidity, and often hurried through the American Press with all imaginable despatch, while our Magazines and Literary Journals, (many conducted by the first

scientific men of our country) fail from the want of sufficient encouragement.

This apathy not only regards works of general Science, but is equally applicable to the few Agricultural productions, published by our countrymen. I was forcibly struck with these feelings upon the perusal of a very valuable Address from Colonel PICKERING to the Essex Agricultural Society in Massachusetts, in February last and published in the Rural Magazine at Philadelphia.

The utility of deep ploughing—the advantages of burying manure as quickly as possible—a due attention to draining and the important doctrine of using *fresh* instead of *rotten* manure, are much and deservedly expatiated upon in this discourse. This method of applying manure the late ARTHUR YOUNG, of England, considers to be one of the greatest Agricultural discoveries of the present age. If any Practical American Farmer will peruse with attention, the Agricultural Essays of Colonel JOHN TAYLOR of Virginia, under the signature of *Arator*, which treat upon manuring, the enclosing system, ploughing and draining, and compare his sentiments upon those important branches of Agriculture with the practice of BAKEWELL, ARBUTHNOT and DUCKET, he will much regret that the able President of this society had not met with that book, as he might, with equal justness and pride, have associated TAYLOR with those celebrated British Farmers, whose genius, enterprise and application, Mr YOUNG says "carried their Agriculture to a perfection unknown before."

Colonel PICKERING's discourse is however well worthy the attention of the Agriculturist, and I notice it to show how prone we all are to look abroad for the experience and information we can find at home. A great diversity of opinion exists among Planters, relative to the most approved method of producing the greatest crops from every article we cultivate. This must continue to be the case, until some cause shall excite a competition between many Farmers; and I anticipate much information upon the culture, of Indian Corn from the emulation which has taken place among certain members of the Claremont Agricultural Society, relative to that important staple of a part of our State.

Permit me with a complete conviction of the great benefit arising from such a plan, to urge the Corn Planter at this season, to restore to his fields as soon as possible after *Harvest*, the stalks, shucks and grass, under a heavy listing of the earth. The *cob* appears to possess much nourishment for plants, and they should be scattered over the fields previous to the *listing*, or *strewn* over the *Cow-Pen* where they preserve by absorption much of the manure, which would be otherwise wasted by *evaporation*. This practice, in conjunction with the enclosing system has produced from Old Fields, to my own knowledge, *half* as much more as when they were last under cultivation. The District of *Pendleton*, I believe to be the only one in our State, which has set the laudable example of offering Premiums for the promotion of its Agriculture. When I ventured to invite a part of my Agricultural Brethren to unite for the formation of a *Farmer's Society* in the *Low Coun-*

try, I flattered myself my feeble attempt would induce some one, better qualified, to point out the numerous advantages resulting from such Associations in many Districts. "*Plough Share*," a writer in the Patriot "has fully met my wish."

A COTTON PLANTER

FOR THE AMERICAN FARMER.

MILLET.

MR. EDITOR:

Had I anticipated the publication of the several letters written by myself on Millet, which have appeared in the American Farmer, I should certainly have given its specific, rather than generic, name. was I decider, ignorant of the existence of so many species as, it appears, there are in the United States.

Dr. Mease, will I confidently hope, in a short time furnish us, with a botanical description of the several species, and varieties of this valuable plant. In the mean time, for the satisfaction of Mr. Smith and others, who are solicitous of the information, I will state that black millet, (*Holcus tectorius*), is the kind I cultivate.

Your's truly,
BENJAMIN COLMAN.

Spotsylvania, (Va.) 27th August, 1821.

FOR THE AMERICAN FARMER.

HOW TO MAKE CAPONS.

J. S. SKINNER, Esq.

Sir.—We read in history that a favorite dish of the ancient Romans was, the "*Gallus spads*," or capon, and in such high repute was it, that it generally graced the board of that most excellent judge, of good eating, Lucullus, and might probably have retained its celebrity, during the most luxurious days of Rome, but for the higher claim of that delicious tit-bit, the "peacock's tongue."

Shakespeare, it seems was not insensible to its worth, when he represents the justice,

"In fair round body, with good Capon lin'd."

And we are told that in Great Britain, at the present day, the fat capon is preferred by a "portly alderman," at a corporation dinner, to every dish. *Turtle-soup*, only excepted.

What is the reason, that in our country where good living is so highly prized, the capon is seldom, if ever seen on the tables even of the luxurious? Should a person visit the most respectable and wealthy houses from Maine to Mississippi, he would not probably once in seven have this question put to him at dinner, "Sir, shall I help you to a fine piece of capon?"

I would by no means attribute this neglect of one of the finest dishes in the world to obtuseness of the palate—but rather to want of skill in performing the necessary operation on the cock. To obviate this, I will subjoin directions, by the observance of which, a man of common adroitness, can make two dozen capons in an hour.

Lay the chicken before you on his left side with his head towards your left hand, let an assistant hold him by the head and legs extended. With a small sharp knife make a transverse in-

cision of one and an half inches or more in length, between the wing and leg on the right side just below the ribs. Insert the fore finger, and near the middle of the body at the distance of about three fourths of an inch from the incision, near the back, will be found the *testicles*, which may be easily removed by the thumb and finger. Sew up the orifice and daub a little tar on the place, externally to prevent the flies from infesting the wound. Care should be taken in cutting through the several integuments, lest the viscera be wounded. The cock should be about half grown.

Not one in a hundred will die in consequence of the operation.

Respectfully Yours &c. C.
Virginia, 27th August 1821.

Premiums for the preparation of flax.

The Board of trustees of the MASSACHUSETTS SOCIETY FOR PROMOTING AGRICULTURE, viewing the culture of flax as of primary importance to the agricultural interests of the commonwealth, have adopted measures to encourage the introduction of Machines for dressing that article without preparation, said to be in operation in Europe; but concluding that much time might probably elapse before such machines could be introduced and their practical utility demonstrated, and with impressions that the injurious preparation by *dew rotting* or the inconvenient process of *water rotting* have retarded the cultivation of this valuable plant, the extension of which would be immediately promoted by the discovery of a mode less liable to objections, appointed a committee of the board, to take the subject into consideration, and to offer such rewards as they might deem expedient to effluetuate the object.

When said Committee contemplate the powerful dissolvent and expansive properties of *steam*, they are led to believe that it will speedily separate the fibres of the flax from the stem without impairing their strength, and at the same time cleanse the material so perfectly as to supersede the use of *Alkalies* or *Acids*: and they are encouraged to hope that its convenient application may be made to comport with calculations of p. oit. Should they be disappointed in these expectations, they have supposed that *Boiling* may be resorted to in preference to the usual method of preparation, especially when it is considered that this process, as well as *steaming*, may be performed at such seasons as will not interfere with other important labours.

The Committee offer,

To the person who shall prove by actual experiment, the best and most economical method of preparing flax by *steam*, which shall appear to the satisfaction of the Trustees preferable to the common modes—the Society's Gold Medal, or - - - - - \$50 00

To the person who shall exhibit the next best—a Medal or - - - - - \$30 00

To the person who shall prove by actual experiment, the best and most economical method of preparing flax by *boiling*, which shall appear to the satisfaction of the Trustees preferable to the usual modes—the Society's

Gold Medal, or - - - - - \$50 00

To the person who shall exhibit the next best—a Medal or - - - - - \$30 00

To the person who shall prove by actual experiment, *any other mode* of preparing flax, which shall be deemed by the Trustees preferable to the usual method—the Society's Gold Medal or \$50 00
A strict compliance with the following requirements will be necessary to entitle the competitors to premiums, viz:—

The experiment must be made upon a quantity that shall produce not less than seventy-five pounds of well dressed flax. A particular description of the apparatus; an account of the cost of the same; the time employed, and manner of conducting the whole process till the material is ready to be dressed; the quantity of fuel used, and all the items of labour and expense. And also the expense of *dressing*, and the quantity dressed per day, by hand or machinery. The whole to be attested by the claimant, and one or more of his assistants, before a magistrate. These documents, with a fair sample of the flax of not less than five pounds; are to be deposited with BENJAMIN GUILD, Esq. one of the Secretaries of the Board, at his office, State-street, Boston, on or before the second Wednesday of January, 1822.

S. W. POMEROY, Chairman.
August 21, 1821.

THE FARMER.

BALTIMORE, FRIDAY, SEPT. 7, 1821.

PRICES CURRENT.

Flour from the wagons, \$5 12½—Whiskey from do. 27 cts. exclusive of bbl.—Wheat, white, \$1 02 to 1 05—Red, do. 97 cts. a \$1 00—Oats, 20 a 23—Rye, 40—Hay, \$12 a \$14—Live Cattle, \$5 a 6 50—Cod-fish, per quintal, wholesale, \$3, retail 3 50 a \$4—N. England Beans per bushel \$1 12½—do. Peas, 75 cts—Plaster in stone \$6 per ton—do. ground, \$1 35 per barrel, 33 cts. per bushel, \$3 per ton—New-Orleans sugar, \$9 to \$12 50—Muscovado, do. 9 a \$12—American White Lead, \$12 50—Ground do. 13 a 14—Linseed Oil, 75 cts—Feathers, 40 a 45 cents—Shad, new, \$6—Herrings, \$2 a \$3 25, declining—Fine Salt, 55 cents per bushel—Ground Alum do. 55 a 60—St Ubes, 60—Cadiz, 50 a 55—Turk's Island, 75—Beef, 8 to 10 cts—Hams, 10 a 12 cents—Middlings, 12 cents—Butter, 25 cents—Peas, 50 cents per bushel—Eggs, 12 cts—Cheese, 8 a 10 cts per pound—Tar \$2—Turpentine, soft, 2½ Carg prices—2 ms. —Hard, 1 30 to 1 62½— credit.

Pitch 2 a 2 25—Rosin, common, \$1 37½ a 1 50—Varnish, 25 cents—Spirits Turpentine, 33 cents per gal.

Maryland Tobacco.—A crop from South River of 7 hlds sold the present week at \$9 and \$6—Good Tobaccos in demand, at an advance from \$1 50 to \$2 per cwt.

No sales of Virginia.

UNIVERSITY OF MARYLAND.

The Medical Lectures will commence in the University of Maryland, on the last Monday of October, and be delivered by the following gentlemen:

Surgery, John B. Davidge, M. D.; Practice of Physic, Nathaniel Potter, M. D.; Chemistry, Elisha De Butts, M. D.; Anatomy, Samuel Sharp Pattison, Esq.; Materia Medica, Samuel Baker, M. D.; Obstetrics, Richard N. Hall, M. D.; Institutes of Medicine, Maxwell McDowell, M. D.

By order: GRANVILLE S. PATTISON,
Dean of the Medical Faculty,

Baltimore, August 29.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua si bona norint
Agricolae." VIRG.

VOL. III.

BALTIMORE, FRIDAY, SEPTEMBER 14, 1821.

NUM. 25.

AGRICULTURE.

Brief observations, on some of the diseases of INDIGESTION, and the deleterious effects of the COFFEE OF MOCHA and the W. INDIES : with considerations on the salutative virtues of RYE COFFEE—and instructions for preparing it.

BY CALVIN JONES, M. D.

RALEIGH, N. Carolina, 1821.

BRIEF OBSERVATIONS, &c.

Persons of weak constitution; those in the decline of life; women, particularly of sedentary habits, are in a peculiar manner subject to head-ach, nausea, cholera, &c. Even men, whom nature intended to be robust and healthy are often afflicted with these complaints. Consumptions and Dropsies of the breast are diseases of common occurrence. All these, in Carolina, are of comparatively recent date, and belong almost exclusively to the present age. This, I am warranted in asserting, from the testimony of all whom age and experience have qualified to pronounce, and I can myself bear witness to their increasing frequency since I have been an observer.

These diseases depend, for the most part, upon a derangement of the digestive functions,—and this again depends principally, and so far as it is my present purpose to pursue the enquiry, upon the quality, quantity and mixture of the food, drinks and condiments taken into the stomach. There are other and inferior causes that would belong to an elaborate and systematic essay, embracing more comprehensive views than belongs to a brief tract intended for popular use.

The first settlers of this country were remarkable for their industrious and frugal habits. Spirituous liquors were drank only occasionally, when the distant store was visited, militia musters attended, or on some remarkable occasion. If excess was sometimes indulged in, abstinence and the labours of the field, or the chase soon wore off the effects, and the system had time to regain its powers and establish its balance before another debauch followed. Their diet was plain, substantial and simple. The use of that indigestible and poisonous drug, coffee, was unknown. The consequence of this mode of living was, an almost, total exemption from the diseases I have named. But as wealth flowed in, luxury and disease came in its train. The decanter dispensed its bane from every side-board, and coffee and other luxuries at every table diffused the seeds of disease under the guise of sustaining life.

Head-ach, the first disease I have named, and the most important on the list for severity of suffering and frequency of occurrence, is not always symptomatic of an undue performance of the digestive functions. Sometimes it is produced by an excessive degree of excitement in the system—and again, it is, though rarely, a disease of too little excitement, and denominated, as many diseases are, because not understood, *nervous*. Sometimes a pain in the head is strictly a rheumatism, which may be suspected by its alternating with pain in the bowels, the large joints, &c. In this there is a sensation of coldness in the head, and one remedy among others, is to throw away a superfluous cap or two, cut off the hair and affuse the head and whole body with basins of cold water in the morning and of hot water at night; to administer, guaiac, laud, &c. &c. On another occasion I shall treat at large of rheumatism from observations I have been

twenty years recording, and shall, I trust, detect it in the guise of other diseases, where it has concealed itself by its equivocal or deceptive character. To this detection in one of its forms I attach much importance, as it leads directly to the only certain method of cure. A head-ach is also sympathetic with the sockets of teeth that have heretofore been the seat of pain. Of all these varieties I have nothing more to say in this place, and there are few in number, compared with those connected with a diseased stomach.

Of the diseases of indigestion to be briefly treated of here, their exciting causes are—

A. Spirituous Liquors.

B. Indigestible Aliment.

Indigestible from

a. Its intrinsic nature.

b. Its incongruous mixture, &

c. Its oppressive quantity.

I would speak of the depressing affections of the mind, of want of exercise, of retroductent eruptions, and also of the injurious effects of tobacco, in its directly debilitating influence upon the system; and its occasioning a waste of saliva, a necessary solvent of food, were it not for the consideration that the brief view I am taking compels me to pass along without noticing the subordinate parts of the subject.

A. Of Spirituous Liquors.

The use of ardent spirits can scarcely be indulged in without the certainty of injury. The system in health requires only nutriment and the addition of a stimulant so powerful as ardent spirits is foreign to its wants, and of course must be hurtful to its effects. To good health no addition can be made, and of consequence, any change produced must be a recession towards disease. A sober dram and grog drinker is not easily persuaded that he is doing a permanent injury to his constitution, because he confides in the safety of moderation, but he is certainly laying the foundations of the most formidable diseases, and does more injury to his system than the occasional drunkard who has long intervals of abstinence.

I have often witnessed, and so has every practitioner, that when the patient was an habitual drunkard, his disease whatever it was, would run its course uninfluenced by medical treatment: If a sober drinker, he was not readily susceptible to the impressions of medicines; but if a water drinker his system could be controlled at will and when the oppression of disease was removed, would, like the bent but unbroken spring, at once recover its pristine elasticity and force. A drammer, however moderate he may be, will commonly perceive that he has impaired the functions of his stomach, by his want of relish for simple food, and by his incapacity to digest it.

A. Indigestible Aliment.

a. from its intrinsic nature.

As the plan of this essay will confine my remarks within very narrow limits, I shall notice by name only the single article of coffee. But this is enough—the indigestions, produced by this foreign poison, and the affections depending thereon, make a distinguished figure in the modern catalogue of disease. I could, if my limits would permit, and the occasion required, give hundreds of instances of persons who have impaired the functions of the stomach and injured their general health by the use of coffee: a few must suffice.

Mrs. — had long been subject to daily cholera and frequent head-ach, for which she was in the habit of taking carminatives and evacuates. By discontinuing the use of coffee and adhering to a plan of simple, soluble aliment, she gradually regained good health.

Mrs. — had acid eructations, head-ach-constipation, cold hands and feet, low spirits and a dry cough.

Abandoning the use of coffee, commenced the cure, which was gradually perfected by simple diet, rye coffee and the pills to be mentioned hereafter. The head, before this prescription, had been shaved and blistered for the injuries coffee had done to the stomach.

Mrs. — had head-ach and cholera. She at length observed that coffee would not remain on the stomach, but was eructed, for hours after it had been taken. Exactly the same course as pursued in the preceding case had precisely the same result.

Miss — for two years suffered so much from continued nausea and head-ach, as to be unable to attend school with comfort, or pursue her studies with advantage. Substituting tea and milk for coffee, and confining herself to aliment not disposed to ascendency, her health became good and her mind recovered its wonted activity and force.

Mr. — who had been an intemperate coffee drinker, had a sense of fullness in the stomach, heat in the breast, and a slight difficulty of breathing. A drop-sy of the chest at length supervened, of which he was cured with great difficulty.

Mr. — at the age of 60 found that coffee passed his bowels unchanged. The powers of the stomach, he discovered too late, had been quite destroyed by it.

Mrs. — who had used rye coffee for some weeks and rather reluctantly too, because she thought it too domestic and too cheap for a genteel table, and who was unwilling to attribute her improved health to means apparently so feeble, and having in this so little of the parade of doctorship, had her prejudices suddenly removed by a little incident: a friend came to visit her, whom she could not treat with anything that was not costly and foreign, and by participating with her guest in the use of coffee experienced such a degree of heart-burn, oppression at stomach, and head-ach, that she frankly avowed her determination not to drink coffee again unless rye was not attainable.

By pursuing the effects of the impaired powers of the digestive organs to their remote consequences, a great triumph was recently obtained over a disease that has been a reproach to medical science. Dr. Gillett of Raleigh traced diabetes in one very remarkable case to the imperfect exercise of the functions of the chylipoietic viscera, and by a happy application of principles to his very successful investigations, inhibiting the use of coffee, enjoying the use of simple aliment and producing an equality of tonic power between the chylipoietic and sanguiferous systems by abstracting the immediate excitant of the latter, health was restored where life had been nearly despaired of.*

I began my observations upon dyspeptic diseases, produced by the use of coffee, in experience on my own person, five and twenty years ago. At that time I lived and practiced medicine in an unhealthy district upon the Neuse. One autumn, when first able to leave my room, after many weeks confinement to it by fevers, I paid a visit to a family in the neighbourhood, and at the breakfast table declined a supposed cup of coffee offered by the lady of the house, in consequence of its disagreement with my stomach since my illness. On her replying that it was not real coffee, but a counterfeit prepared from rye, having at that time, none of the genuine, I retraced my refusal, made trial of it, and found it tolerable to the palate, and very grateful to the stomach, and I drank it for several days with increased pleasure and continued advantage. On my return home I again attempted the use of coffee but

* It is understood Dr. G. will favour the world, through the Medical Repository, with the particulars of a case alike important to humanity, and honorable to his professional skill.

found it as before indigestible. My experience ever since has been the same: If in good health, and engaged in active pursuits, the inherent energy of my stomach has enabled me to resist the deleterious effects of coffee, but if weakened by disease or confinement it was always oppressive, though it might sometimes produce positive disease. Frequently, when I have thought myself oppressed by the quantity of food taken, I have diminished the solid part of my meal without perceptible advantage; but on suspending the use of coffee, the real offender would be manifest.

But it is said that coffee is a powerful temporary remedy in some cases of head-ach! I have little to say to it as a medicine, nor have I to Hellebore or Opium. I only object to it and them as daily food. An active remedy in disease cannot be innocent food in health. But more than doubt its possessing medicinal virtues. If it relieves head-ach it never cures it, and no more proves that it was not the cause of the complaint, than it is proved that whiskey does not occasion tremors in the hands of a drunkard, because a morning dram will afford him relief. Dr. —, a very observing physician, once fell under the common mistake in this respect, as he lately informed me. He employed coffee, liberally, to cure a head-ach, for an entire summer before he discovered that his disease was caused by the very remedy he afterwards employed so largely to cure it. He now uses rye with pleasure and advantage, and cannot drink coffee without paying dearly for the poor indulgence.

b. Of food, indigestible from its incongruous mixture.

There is a peculiar adaption of aliments to each other, and of those to the taste and stomach, that are essential to good health: Their harmony ought to be consulted. But this is too seldom done: The refinements of luxury lead us every day further from the wholesome simplicity of nature; new tastes are artificially created and our meals are a farago of discordant materials, that call for digestive powers too multifarious to reside in the same organ and be exercised at once. A physician would justly be exposed to obloquy if in the admixture or administration of his medicines, he should bring articles together that would render each other inert or deleterious. But the cook and the epicure bring no science nor even common sense into a service of daily requirement and great importance; and the quackery of their culinary compounds and preparations are as mischievous as any that can be made in medicine; and more; for the slow development of their effects begets a fatal confidence in their innocency, until it is too late to retrieve the error. What can a reasonable being, who will exercise his faculties expect from a meal composed of bacon, beef, fish, fowl, cabbage, peas, pickles, puddings, pies, cheese, milk, eggs, nuts, fruit and fifty other articles, besides wine, beer and spirits? and yet we see such every day, and too often witness their effects. An Austrian in the New York Menagerie, once died of an indigestion from swallowing a bandanna handkerchief, and a parcel of buttons. No wonder that men have indigestions when they emulate an animal famed for the powers of its stomach.

c. Of Food injurious by its quantity.

The moderate meal is not injurious by its want of harmony alone. The provocatives, which the succession of courses and articles offer to the appetite, make it as oppressive by its quantity as by its discordant qualities. A moderate meal imparts vigour, but a full one demands strength to sustain it. The example of the Arabs, of the American Indians, and of the poor in some of the countries of Europe, show how little nourishment is necessary to good health, and the vigorous exercise of all the faculties of body and mind. I have, from choice, and also from necessity, been subjected to the proof in my own person, that the best of health may be enjoyed, with an unusual degree of activity of body and mind, on a diet that I deemed at the time, and which all would pronounce exceedingly slender. Proofs are not necessary to a fact of which the probability, if not the certainty will

appear evident to every one who has had frequent experience of full meals—a qualification to judge extending, I believe, to every civilized individual of America.

Having treated of the causes, I will now proceed to the consideration of the

REMEDIAL PROCESS.

The curative means proposed will not be more variations and ample than the view which has been taken of the causes—they will be made to correspond with each other. I shall therefore, without immediate reference to the particular indications to be answered, reat—

- I. Of water drinking and of abstinence from spirituous liquors.
- II. Of simplicity in diet and uniformity of Regimen.
- III. Of food, of easy solution and harmonizing with the stomach, and
- IV. Of Medicines

First—Of water drinking and of abstinence from the use of spirituous liquors.—Though experience has been abundant, yet the effects of spirituous liquors upon the system is not generally understood: but from much and attentive observation, particularly in travel, I am abundantly satisfied that cold, wet, heat and fatigue are better endured, and their common effects more completely resisted without than with the use of spirits. I could produce a hundred instances in proof, but I hope it will be believed without the details, for which, I have neither time nor room, that my observations have been correct and that my inferences are just. These facts would be in point to prove that the powers of the stomach cannot be invigorated, but must be weakened, by the use of ardent spirits. It is understood that I am speaking of their common use in health, and not of their medicinal use in disease. To relieve the stomach from the oppression of a full meal, spirits, wine and porter are commonly resorted to, but they only serve to aggravate the complaint and add to the oppression. Pure water is the best and most efficient remedy, as I have many times experienced. A tumbler or two taken cold upon the stomach will in such circumstances show how art is often misapplied and how reasoning about the invigorating effects of stimulants is liable to mislead. Dr. Manley of New York, has lately related in the Medical Repository an interesting case of the alarming effects produced in a patient recovering from Typhus Fever by taking indigestible food, which, after resisting a variety of stimulant medicines, yielded promptly to the liberal administration of ice. The increased appetite and improved powers of digestion, always witnessed at all the watering places, may be attributed to the lessened use of spirituous liquors, and the greatly enlarged use of water, without attaching much merit to its various impregnations. Dr. Mosely says, the ladies of Jamaica have excellent appetites and are great eaters, because they are great water drinkers. The same observation may be made every where else as well as at Jamaica, going to show that water is the best and only proper nutriment for food.

Strong drink is sometimes taken to remove fatigue and exhilarate the spirits: but the good effect is uncertain and transitory and the evil permanent and sure. I have travelled much in savage haunts and among civilized abodes, and have tried all the resources of art commonly employed to recruit exhausted nature, and can say that sleep is more effectual than any potation and tea more efficacious than strong drink. Tea should be taken, not in the morning when the system is in the freshness of its vigour, nor at night when sleep is required, but in the middle of the day when nature is already fatigued and has yet much to undergo. A decoction of tea or the leaves eaten dry, I have always found, under such circumstances, invigorating and refreshing. I will add, that I know from much experience that heat and fatigue are best borne when the stomach contains but little food and when that little is light and bland.

II. Of simplicity in diet and uniformity in regimen.—It requires no easy credulity, nor yet a disposition to undervalue the acquisitions of science to believe that

all women often cure diseases that have baffled the skill of physicians. Dr. Rush seemed to take a peculiar pleasure in mentioning this fact, which he attributed to their long and patient adherence to the same simple prescriptions. Every observing man has witnessed, if not their efficacy, at least the success that has attended their excellent negative merit, of doing no harm.

I was lately amusing and perhaps instructing myself in turning over the leaves of some Italian authors who flourished three centuries ago, and who laid the utmost stress upon this decoction of herbs and that particular article of diet. One could not help smiling at their ignorance, and yet I have no doubt their prescriptions were often very successful, not that there was any particular merit in this or that article of food or medicine, or that any good reason could be given why one was preferred and the other rejected: But they were simple; they were innocent; they did not perplex the powers of digestion and gave the system an opportunity to recover itself.

More than twenty years ago the late Gov. Spaight in conversation informed me of his own case—that he had been afflicted with ulcers which had baffled the skill of Rush, Osborn, and others, and resisted the sanative effects of the air of Bernuda. At length an old woman in Philadelphia prescribed a decoction of barley and a milk diet, which effected a cure. On mentioning this to Dr. Rush, he claimed it as his own forgotten discovery, and produced an old newspaper in which it had been promulgated a dozen years before. Though I have no doubt of the verity of the fact, and believe more in the efficacy of the remedy than I do in another Sybiline prescription of the Doctors; common salt as remedy for hemorrhage of the lungs, (contradicted by all my experience,) yet I more than distrust the correctness of any theory of the mode of cure in this case which gives the credit to medicine, strictly so called, rather than to regimen.

The preceding facts are stated and remarks made merely to confirm my own experience and justify my own opinions—I could, if it were necessary, multiply proofs of the importance of a persevering adherence to a plan of simple diet and medicine in various diseases, and particularly in those of that primary and noble organ the stomach. It is important in indigestions to go back to the first simple food of nature.—Milk often disagrees with the stomach that has been estranged from its use, and whose faculties have been perverted, but Dr. Rush's instructions are "when a patient complains that he cannot bear milk, prescribe a milk diet." The complaint is proof of a state of stomach that nothing but the simplest diet will cure. In extreme cases, milk will sometimes require the preparation of boiling, the addition of salt, &c. or the contemporaneous use of soda. For the most part stirring well boiled hominy, rice or mush into milk to prevent the forming of any considerable mass of coagulum, is all that will be required in cases where acidity the most abounds. Once a day, at a stated period, flesh might be used sparingly with bread and some one vegetable, if found to agree with the stomach, but at a marked distance from any other meal.—The periods for taking food and medicine, and for evacuations, exercise and sleep should be regular and stated.

III. Of Food of easy solution and harmonizing with the stomach.—As the narrow limits of my plan forbids my going much into detail I shall, under this head, only specify a single article for a breakfast beverage as a substitute for that indigestible berry, Coffee. I say a substitute, for though I condemn Coffee and have all possible favor for milk as an article of diet, yet I would not banish hot drinks from our breakfast tables, but would rather advance a step and extend them to soldiers and slaves, believing they would add to their comforts, conduce to their better health, and lessen their appetite and imaginary necessity for strong drink. I therefore propose a substitute.

I will not undertake to say how much is positively due to a beverage prepared from Rye in giving and preserving health beyond the merit of excluding that unwholesome article Coffee from our tables, but I

know something is. Rye is an excellent article of food and rye mush has long been celebrated as a diet for consumptives. A gentleman of my acquaintance thinks that Rye Coffee, drank as his constant beverage at all times of the day for many months, cured him of a consumption. From considerable experience, I am so well satisfied that it is a mild, inoffensive and nutritious drink, perfectly soluble in the stomach, and exceedingly well adapted by all its qualities to supply the place of Coffee at our tables, that I have no hesitation in recommending it in the strongest terms to all who would preserve their health, or having lost, would regain it.

To prepare Rye for use it should first be scalded and washed, then boiled fifteen minutes, afterwards remain in the water until somewhat swollen, and lastly thoroughly dried in the open air. The next process is to roast or parch it carefully without burning. When ground, about two gills is by the admixture of cold water to be formed into a paste. Three quarts of boiling water is then to be added and the pot which contains it to be placed on coals and kept boiling for a quarter or half an hour. It is improved by slow and long boiling and by a leisurely decantation afterwards. When sufficiently boiled, is to be removed from the fire and a quantity of cold water, equal to that which has been evaporated, is to be suddenly poured into the pot and the whole slightly stirred up with a spoon. A little is now twice to be poured off and returned to the pot. After remaining 8 or 10 minutes or longer, to give the grounds time to subside, it is to be poured off into another pot until the sediment is disturbed. The grounds on a little agitation are rendered so buoyant that this decanting is necessary to preserve the liquor free from turbidness. Thus prepared, it is of a fine amber colour and with due portion of sugar and cream has a rich balsamic taste and a very grateful flavour. Some who employ it mix the Rye with one fourth the quantity of Coffee to give it the peculiar flavour of that delicious bean—but the rye flavor is superior to that of the coffee when custom shall have rendered it familiar; and to retain the fourth of the evil, for that consideration, is making very bad terms with an exposed and subjugated foe. Besides, the articles are not suited to each other; they do not assimilate; they are wanting in natural affinity; the dejection from the mixture will not depurate readily, and the conjoined flavor is inferior to that of either taken singly.

Rye is a delicate grain and should be preserved carefully and treated with scrupulous exactness or it will disappoint the expectations I am attempting to excite. It should be kept dry and well secured from mice and insects, and be occasionally stirred and aired or it will acquire an unpleasant flavor. After scalding and washing, if not dried speedily and thoroughly, by being thinly spread, and having a proper exposure, it will become musty; and even after being roasted, with great caution, if the weather is damp* and hot it will sustain injury.

As an example to encourage the timid in the use of rye as well also as to bring into notice another beverage of excellent qualities, I will mention the Youpon, which is in universal use on the banks and along the sounds of North Carolina. This has a very nauseous taste and smell to those unaccustomed to it, but when used for a time, the fondness for it is greater than that for tea or coffee, almost equalling the passion which many acquire for ardent spirits and tobacco. My own experience of it may serve to fortify the principles and strengthen the resolution of some. A contempt which I have always felt for the effeminacy of those who would not live as they found others living among whom they travelled, led me many years ago to make a fortnight's sacrifice of taste to this sentiment in regard to Youpon, and I have since been amply repaid for the temporary sufferance. During

* The rains for some time past imposed on my cook the necessity of trying another method of drying the rye, different from the above, and which proved to be equally good. It is to dry it in the vessel in which it is roasted, making the drying and roasting a continuation of the same process.

the late war, when it became my duty as commanding general of the militia, to be much upon the sea board, I lived well upon Youpon, while other officers, who chose to retain their prejudices, fared many times but indifferently. No beverage is now more grateful to my taste than Youpon, and when I first commenced its use, few things could have been more offensive.

The utter prohibition of Coffee from our tables is also urged by the strongest considerations of patriotic regard. The average quantity annually consumed in the United States from 1803 to 1812, was more than sixteen millions of pounds weight, and the quantity has greatly increased since. In the most disastrous year of the late war, there was consumed upwards of twelve millions of pounds, much of it our enemy's product, at a cost to the consumers of nearly six millions of dollars.

The difference between using an article of domestic growth at one cent a pound, and another of foreign product at thirty five, is not the only economical consideration I would impress. By the use of the former a saving is made of one half the quantity of sugar.

Having disposed of the only article I intended to specify, it becomes necessary, in order to complete this head of the subject, to speak of the preparation of food. Here I can no more go into detail than I could upon the specific articles. I shall only contend that good cookery is indispensable to good health. We have many valuable scientific books to guide us in the preparation of medicine, but not one for food. Our books of cookery are but the panders of disease, intended only to provoke the appal'd appetites of epicures. We want advice how to obtain the most nutriment, to preserve it in the greatest admissible simplicity, to render it soluble, to adapt the different ingredients to each other and to the stomach, and to conduct the whole process with a proper regard to economy. That man who would bring science and observation to such a task, and give the world a book, would do it more service than by discovering the longitude. Doctors Rush and Mitchell, and President Cooper, have each pointed to the subject, but it was from the top of Pisgah. We want minute details. In this place I can only content in two words for Aliment, that is simple and soluble.

IV. *Of Medicines.*—Those diseases, caused in chief by errors of diet, will, for the most part, be cured by the simple operations of nature, if these errors are corrected. But removing the cause is not the cure, and the advancement of the system towards health will generally, in point of time, bear some proportion to its previous recession from it. Some medicines may be absolutely necessary. A torpor of the viscera, consequent flatulency, acidity and costiveness may all require them, and the urgency of any particular dyspeptic symptoms may demand energetic treatment specially directed to it. But for general purposes, answering to them all, and adapted to nineteen cases in twenty that occur, no other medicine will be required than the *Temple's*, of which the following is the composition:

Powdered rhubarb, three parts, super carbonate of soda, two parts; asafetida, aloes and castile soap, each one part—Honey sufficient to form the mass. Of these, from two to six pills of the ordinary size, in divided doses, are to be taken daily, as the state of the bowels may require.

I say nothing of the benefits produced by the warmth and irritation of flannel over the skin, nor of the great importance of producing and keeping up an eruption upon the back in many cases of Dyspepsia, because I have omitted to speak of repelled eruptions and some other occasional causes of the disease.

This is what I propose at present to offer on the subject of the diseases of indigestion. I know that the plan of curing them in the simple way I have prescribed, has little in it to attract the confidence of the vulgar, or gratify the vanity of the learned. I have said nothing of Herculean remedies as they are termed, and patients who are averse to the trouble of regulating their diet and regimen, as well as those physicians who are averse to the trouble of thinking, love to repose upon a medicine which has healing attri-

butes, numerous and positive as those which Dr. Clapain man with more liberality than discrimination, has applied to the articles of his Materia Medica. It alienates responsibility and care, but leaves—hope. Instead of recommending them I must impress upon my readers a caution of their danger. I frankly acknowledge all that medicine owes to Chemistry. It has greatly enlarged its powers and subjected diseases to its control that bade defiance to galenicals. But it is doing too much. Every where its janizaries are employed, and the evils they produce by their violence almost counterbalances the benefits they confer by their power.

The have annually produced by violent medicines in the bowel diseases of infants should awaken reflection: Nor is the vigour of manhood proof against their overwhelming force. I have seen in autumnal fevers, (or bilious fevers if physicians please to make them such,) Jalap and Calomel given in large and repeated doses, to bring away bile which did not yet appear, but which the sagacious physician gave assurances would appear; when at length, by these powerful excipients, the whole force of the disease, very little lessened by insufficient bloodletting, would be diverted upon the chylipoietic viscera; then indeed the bile would shew itself in great abundance, and then the physician would deem himself called to a new administration of Jalap and Calomel to carry it off, and which, in the end, would commonly carry off the patient also. I have been many times shocked to witness a perseverance in these and similar errors, by very good physicians, without their being apparently awake to the consequences: when, if instead of employing this Herculean force, the inflamed sanguiferous system had been unloaded of a weight disproportioned to its powers, and broken doses of neutral salts to promote gentle evacuations, had been given, the cure would have been too easy and speedy to have gained, in so mild a disease, any reputation to the prescriber.

Doctor Rush proposed to humble the pride of science by giving a prescription learned from an old woman. In furtherance of the views I am advancing, I will offer one obtained from a negro slave. Five and twenty years ago, I witnessed an old Mandingo giving charred corn-cobs, with good success, to the negro children of the estate to which he belonged for a "watery gripes," a practice which he told me he had learned in Africa, and it gave me great pleasure to find afterwards, that Mungo Park in his travels there, had witnessed the same practice.

Again—Medicines should not be nauseous; and with this remark I will dismiss the subject, that the stomach is an organ whose importance to life and health is attested by the safeguard of its delicacy, and which cannot be trespasses against without the infliction of injury.

DEDICATION.

The foregoing hasty and imperfect essay, I beg leave respectively to inscribe to the two men of America, most distinguished for genius, learning, and public spirit, *De Witt Clinton* and *Samuel L. Mitchell*, of New-York, and to the most intelligent and judicious physician of Carolina, *John Beckwith*, of Salisbury, and through them I dedicate it to the interests of general benevolence.

ROTATION OF CROPS,

By HENRY S. TURNER—in answer to the Objections of Mr. HARNY MINOR.

FOR THE AMERICAN FARMER.

Wheatland, August 22d, 1831.

MR. SKINNER—It would afford me very sincere pleasure to comply with Mr. Minor's desire, that I should communicate "some further details on the Rotation of Crops which I have adopted," and pursued for many years on my farm; but it does not occur to me, that I can add any thing of importance to the information heretofore given on the subject in the pages of the "American Farmer."

I will, however, ask leave to offer a few remarks, in relation to the "objections" that have been suggested by Mr. Minor, to the system which I have pursued.—

The Rotation is wheat, corn, fallow, wheat, clover, clover. The objections are—1st—"The naked situation in which the field is left in fallow, after corn, subject to the washing rains of winter and spring, and exposed while in this naked state, too much to the influence of the sun, at the commencement of summer."

2ndly. "The increase of team, which it will be necessary to keep on the farm to accomplish the following, for wheat of two fields instead of one."

Experience has not verified the first of these objections, to the extent apprehended. It is obvious however, that the proper selection of an established course of crops, and the results of the various systems, depend very much upon the peculiarity of the soil, mode of culture, &c.

My method of cultivating corn, is as follows: As early in the spring as circumstances will admit, the ground is broken up to the depth of seven or eight inches and well harrowed.—The corn is planted, about the first of May; when about six or eight inches high, it is harrowed with a large heavy harrow, passed directly over it, after which it is thinned.—Early in June it is ploughed with the shovel-plough; and, immediately preceding harvest, it receives with the cultivator, the last dressing—which is very superficial. Perhaps Ballthrop's double-shovel patent plough, is better adapted to the cultivation of corn, and the putting in of small grain, than any other instrument and might be advantageously used to give this last working to the corn crop. The whole process being thus completed by the latter part of June, the surface of the ground becomes completely covered with crab-grass, bottle-brush and a variety of weeds, by the middle of August, which added to the circumstance that our lands are not much liable to wash, obviates considerably that branch of the objection—Its exposure to the influence of the sun, at the commencement of summer, is an evil of greater force than the foregoing; but, I apprehend it is not one of sufficient magnitude to induce an abandonment of the system, unless a better can be shewn. Pretty early in the summer, a vigorous soil will throw out a great variety of plants to shield its surface from the sun's rays; and I have always found mine, when the season for fallowing arrives, thickly clothed with crab-grass, bottle-brush, and hog and carrot weeds, together with other indigenous plants, to the height, some of them, of five feet or upwards. These turned in to the depth of seven or eight inches, tend considerably to the melioration of the soil, leave it in a light state to favour the expansion of the roots of the wheat in quest of aliment; and, perhaps, counterbalance the injury received from temporary and partial exposure.

As to the 2d objection, I have not found it necessary for the purpose therein specified, to incur an increase of team. If the teams attached to the farm, were barely sufficient to till the corn field, and prepare one fallow field, they would be inadequate to perform various other indispensable services: and at no season of the year, in fact, are any of my teams idle, except during harvest.—Immediately after seeding, (say the 10th of October) one team of six horses or mules, is engaged in the transportation of flour to Market; and, in bringing back loads of plaster, salt, fish, groceries and whatever else the wants of my family or farm may comprehend: and the remaining teams, find full and constant employment in the innumerable occupations at home, hauling in corn, threshing and delivering wheat into the mill, hauling rails, manure, and fire wood; supplying the racks with provender, &c. &c. &c.

Whether the foregoing statement be a satisfactory refutation of the objections, or not, I submit to the better judgment of Mr. Minor.—It has been elicited by the deference I feel for that gentleman, and the interest which I take in the cause of agriculture:—if further developments be desired, I must refer to my communications in the "American Farmer"—at the same time, I am really apprehensive that nothing contained either in this or any former sketch, is calculated to interest or to instruct.

Mr. Minor says "that the rotation which he is in pursuit of, is the one, that is best adapted to a soil,

situation, &c. where wheat is the staple crop, where tobacco is excluded, and where it is no object to grow more corn, than is sufficient for the farm." This is essentially mine—I have pursued it for twelve years, and more successfully than any other has been, with which I am acquainted.

One innovation, only I contemplate, and shall commence this fall: it is to seed my corn field, in addition to two fallow-fields, one half in rye in the fall; the other half in oats, in the spring: then instead of having three fields, or one moiety of my arable land in grain annually, I shall have four fields, or two thirds under tillage, and the course will be wheat, corn, rye and oats, wheat, clover, clover. This may be considered a severe test of the soil, but I believe that mine will sustain it and improve. The only objection that presents itself to my mind, is the probable necessity of hiring aid in harvest; but should it be found indispensable, the augmented profits will administer some consolation.

Very respectfully,

Your most obedient humble servant,
HENRY S. TURNER.

ON PEAS—PEA VINES—AND FATTENING HOGS.—By JOSIAH D. GAILLARD.

To the Agricultural Society of Pendleton, S. Carolina

August 13, 1817.

There are perhaps, few parts of the United States, where a strict observance of economy in husbandry is more loudly called for, than in this district; and I verily believe we practice as little as any civilized people in the world.

Our range, which some years ago, was as good as could be wished for, is now almost completely exhausted. It is at least so far spent, that during the spring and summer months, all that our cattle can glean from morning to night, is barely sufficient to make the most thrifty of them tolerable beef by fall; and that not without the assistance of bushes and weeds of various kinds; and the mast of the different kinds of oak, which formerly seldom failed to be abundant, is now seldom sufficient for the support of our hogs, half of the winter, and although this want of range is so sensibly felt, we are (strange to tell) still depending altogether on crops of corn and small grain, badly manured on exhausted lands, to supply every thing about us with food.

It has been recommended to two excellent communications read before our Society, (as a cheap and easy mode of obtaining winter food for cattle, sheep, and horses) to cultivate the field pea, and I did hope the practice would have been generally adopted; but it appears that some further inducement is still wanting, it is therefore, I am induced to add my experience in the use of that valuable article.

In the fall of 1813, I purchased three acres of peas, as they stood in a neighbours field.

After two severe white frosts had fallen on them, I picked off all the ripe peas and such green ones as were full; the vines were then pulled up, and after two days, were caught in a rain, which lasted the whole day. As soon as the sun had dried the upper side, they were turned, and three days after they were hauled up; the produce was one good wagon load and an half; they fed two cows and calves six weeks, once a day, and were eaten heartily, and much preferred to corn

husks or wheat straw, and while they were fed on them their milk was much increased. The peas fed two horses, twice a day, for four weeks, during which time they got in fine order. These peas had been planted some time in June, among corn in the step, and I think ploughed and hoed once.

On the 6th of June 1814, I planted peas in an eight acre field of corn, immediately after the second ploughing; they were put in the step with a hoe, and about twelve grains put in a hole; they were worked once with the plough and hoe; about the middle of September the vines were pulled up, and after laying four days, turned; on the seventh day all the dry peas were picked off, and on the 8th, the vines were housed. Two horses were fed on them twice a day, (and once in the day with sheaf oats,) for five weeks, in which time they got in excellent order, and the balance fed two cows and yearlings, and four sheep, for three months. The two cows during this time, furnished generally about sixteen quarts of milk per day, and in the spring, when they were turned in the woods, one cow, and yearling were good beef, and the others in good order. The corn among which these vines grew, made something short of ten bushels to the acre.

On the 16th and 17th of the same month, I planted peas after the same manner, in seven acres of corn, these were ploughed and hoed once, early in November, all the ripe peas were picked from six acres of the best, the worst acre and all the green ones were left. Thirteen hogs, four head of cattle, two horses and four sheep were turned in the field, and they did not eat all the peas in seven days. After feeding two horses on the peas that were housed from the six acres, for two months, ten bushels were threshed out for seed and other use; the whole bulk after they were housed, was estimated at thirty bushels. The corn among which they grew, was supposed to produce twenty bushels per acre.

On the 2d and 3d of June 1815, the eight acre field from which I cured vines in 1814 and four acres adjoining, of the same quality, was planted in peas, after the same manner, and got the same attendance. Between the 20th and 25th of September the dried peas were picked off, and the vines pulled up; on the fourth day they were thrown up in heaps about five feet high; on the 7th day were opened and on the 8th hauled in. These vines fed two horses, twice a day, for two months, and the balance fed four head of cattle and four of sheep, four months, once a day.

On the 12th 13th, and 15th of June, 1815, I planted peas among eight acres of corn, after the second ploughing, (these were planted in double rows, that is two of peas for one of corn;) they were ploughed and hoed once, early in October; they were seen by a great pea planter from the low country, and pronounced to be very fine; early in November, they were picked over once, and the bulk judged by the same gentleman to contain at least forty bushels of shelled peas; twenty bushels were threshed out for seed and other use, and the balance fed two horses better than two months.

The corn among which these grew made sixteen bushels to the acre.

From the 20th to the 23d of May, 1816, I planted peas in ten acres of corn; these were dropped in the furrow next the corn on both sides, and covered with the plough; they received one hoeing and ploughing. From being planted so near the corn and in such quantity, each injured the other, and the drought in addition, rendered the peas on the poorer parts of the field unpromising. The vines from these parts were pulled up and fed to my horses and cattle in September, for the want of pasture for them; the other five acres being stronger land, and lying lower, were suffered to ripen; and although they were injured by deer, which frequented the field every night, for some weeks, and they were not picked until late in October, they produced twenty-five bushels of shelled peas; and from two acres of stiff old bottom planted on the 19th of June, after my old method, and ploughed and hoed once, I gathered ten bushels: these thirty-five bushels of peas, fed two horses two months, and left thirteen bushels for seed; the feed given the horses was a bushel basket three times a day, between the two. It was generally shook down and a little heaped, and upon threshing and measuring one of those feeds with my own hands, it was found to contain three quarts and one handful; with this they had a common allowance of fodder. While my horses were so fed, they were daily employed in the plough or hauling new rails in the wagon, and they were fat. We know that the common feed for work horses is at least eight quarts of corn per day; nearly twice as much as mine get when fed on pe s.

From the 25th to the 26th of May, inclusive, I planted peas in sixteen acres of corn, with the first ploughing, dropping them in the furrow next the corn. This corn was never worked again until it was tasseling; it was then ploughed and hoed, and laid by; on one row across the field, there was no peas planted, and on the adjoining row, they were planted on both sides; when the corn was dry, I took two gentlemen in the field, and directed their attention to this experiment—they were of the opinion that the row which had no peas could scarcely be discerned to be any way inferior to those which had them but on one side, whilst that which had them on both sides was much inferior to both of the others.

Between the 20th and 25th of September, these vines were pulled up, and, after being three times wet, were at the expiration of fourteen days hauled up; the product was twenty loads of a two horse wagon, as much as two horses could well pull. I fed two horses on them four months; and three milch cows and their calves, and four sheep, four months, once per day; the horses had them three times a day, a bushel basket to each, at each feed, with two bundles of fodder; the cows' feed was one basket to each; the calves, one for the three, and the sheep one. While my horses were so fed, they were in almost daily use, a good deal of the time hauling wood; and the stable was a shed entirely open on the north and east

sides; notwithstanding this usage and exposure they fattened and remained so.

The three cows while fed on these vines, yielded four gallons of milk per day, and from the two which had young calves, one half of the milk only was taken; in a word, when my cows have been fed on pea vines, they have uniformly done well, and yielded an abundance of milk; and I have never had a cow stuck in mire, since I have been in this country. A neighbour of mine, two or three winters ago, fed four cows with young calves well, on turnips and short corn, and I fed two with a spring and yearling calf, on pea vines and kitchen slops; and I made within one pound as much butter in the week as he did; but I know we used more milk in our family than was used in his; and while the butter made from turnips has an unpleasant flavor, that made from pea vines will vie with any other (however made) for fineness, richness of color, and delicacy of flavor. And my horses have never been in better order, had a better skin, nor been healthier than when fed on peas or pea vines.

I have been asked, are they not very harsh food, cured so late? If what has been just said does not satisfactorily answer that question, I will ask the following in turn: If calves of three or four months old will eat them heartily, and fatten on them, can they be fairly considered harsh food? I have again been asked, are they not difficult to cure, so late in the season? They are tedious, but not difficult, because they are not easily spoiled. Do they not also lose all their leaves, when cured so late? They do lose nearly all; but this is made up over and over again, by the number of full and half grown peas they will have by remaining so late. Will not the full peas, in hauling up, all shell out? They will shell very little if handled with tolerable care.

It has been alleged by some, as an excuse for not planting them, that they are weak handed, and cannot save the vines; but this is mere imagination, for it is well known, that a common hand will not strip more than one acre of corn blades per day; and I have repeatedly had two acres of pea vines pulled up by a plough boy, and the vines, when cured, will weigh at least four times as much as the fodder, and will be as much more valuable.

I do not wish to be understood to recommend my manner of planting. It would, I am certain, be far more advantageous to plant them as soon as we have got our corn crop in, either in drill, on beds three feet apart, or cross the beds with a plough, three feet asunder, and drop from twelve to fifteen grains in a hill. The latter mode I would prefer on account of ploughing them both ways, which would entirely supersede the necessity of hough, whereby a larger field might be attended.

The first president of our society, gives it as his opinion, that they would be an excellent preparatory crop for wheat. This has long been my opinion, (although I have not been yet able to make the experiment,) and many years experience establishes this opinion with me more firmly; and to place it almost beyond all doubt, it is the opinion of Judge Peters. Perhaps when they are intended as a preparatory

crop for wheat, it would be best to sow them thick, in broad cast. There is no doubt of it in my mind, especially if the vines are turned in with a two horse plough, and the wheat immediately, or soon after, harrowed in, and rolled.

I should not have gone so much in detail upon the culture and use of peas, but I know that the prejudices against them are numerous and strong; and although I have already said so much, I must add one remark, which is this: while my neighbours' horses are eating corn, at least eight months in twelve, mine have never eaten it more than five; one year they eat corn three months, and this year but two, the balance of the year their food is peas, pea vines and oats.

Some farmers are in favour of curing the vine in August, and contend that they are the more juicy; but if they do contain less juice in September, I think it then becomes more saccharine, is therefore thicker, and I should suppose would lose less in curing; we know that the juices of a corn stock are much sweeter in September than in August.

As a further improvement in feeding of cattle, I would recommend that the shucks be well wet with brine, as they are stowed away in the fall. This was recommended to me last winter, and was done in this way: as many shucks were thrown in the house at a time, as would raise it six inches, after being well trod down; and as soon as they were sufficiently trod, the surface was well sprinkled with this brine; as many more were then put in, and the same process observed, until the whole were put away. In this way one bushel and a half of salt was applied to the shucks taken from these hundred bushels of corn, and the consequence was, my shucks were heartily eaten by my cattle, and until last winter, they never would eat them, as long as they could get pea vines. This is not all the advantage resulting from salting them; it was very evident that they were rendered much more nourishing, as the dry cattle which were fed on the shucks alone, were in nearly as good order as those which were fed on the vines. To do this properly, they should be made so wet as to heat and mould. The expense need not be counted at all, as cattle, while these shucks are given to them, will require no other salting.

As there is so little economy observed in fattening hogs in this part of the country, I beg leave to notice that also, and point out a better and cheaper mode. The common practice is to put them in a large pen, and throw the corn on the ground; in a wet season, they are soon up to their knees in mire, and not a dry spot to lay on. In this situation there must be much corn wasted, and they cannot possibly thrive but very slowly. My practice has been to make two square pens adjoining; they are both floored with rails, and one of them is so covered as to turn the rain, and is well littered with leaves or straw, and fresh litter added at least once a week. In the other pen a trough is placed, in which they are fed from twice to three times a day. One meal they are fed on peas, and the other two on

corn; it is sometimes boiled and well salted, and at other times raw. This has been my practice for three winters; and my hogs have always fattened very fast, and eat much less than those fed in the uncomfortable manner above described.

Last winter, after killing off half of my fattening hogs, the others were fed altogether on fine corn meal, and although the weather had got much more severe, they fattened much faster than they had done before, and eat still less.

Last winter, when my fields were eat out, I commenced feeding my little stock of out hogs on corn; their allowance was six quarts; but when the weather became severe, they fell away fast on this allowance. I then laid the corn aside, and had four quarts of corn meal boiled every day, in ten gallons of water, until it boiled down to about eight; in this a half pint of salt was occasionally thrown while boiling; when done it was taken up in a large tub and given them the next day, and in one week from the day this practice was adopted, they looked much better, and from that time increased in flesh. When the spring opened, they were fed only three times a week, in the same manner, and in the month of May, reduced to twice a week, and by the middle of June it was discontinued. Had I persisted in giving them the six quarts of raw corn, I am satisfied more than half would not have seen the spring.

I have also adopted the practice of grinding all my horse corn into fine meal, and find that I save a third by paying the toll.

I am, dear sir,

With much respect,

Your obedient servant.

J. D. GAILLARD.

J. T. LEWIS, Esq. Corres. Sec'y.

THE RIGHT TIME TO FELL TIMBER—WITH A VIEW TO ITS DURABILITY.

Washington, Aug. 12, 1821.

SIR—

When we reflect upon the destruction that is every day progressing in our forests, and the consequences which, if it continues, will assuredly result to our country, from a scarcity of timber for the common purposes of life, we cannot but regret, most seriously, that providence, which, for the accomplishment of temporary purposes, by apparently the least troublesome means, will sacrifice not only our own interests, but the interests of posterity; whose reproaches we shall deserve, and receive as certainly as our ancestors receive them from us. We too shall the more deserve them, inasmuch as experience has already taught us the value of the trees which we destroy. For them there was some apology in the necessity which existed for preparing the soil for cultivation; but we can have none, because the barren wastes which now disfigure our country, will require the industry of ages to restore them to their original fertility—for creating these, our progenitors have also been censured, but with less cause. In the one case there was providence; but the other arose, first, from the demands of the mother country upon its colonies, which took all from, and returned nothing to the soil; and, secondly, from that happy state of our country, which enabled us to supply the wants of all Europe, while she was torn by intestine commotions.

They stand, therefore, as monuments to remind us of a subserviency, from which our forefathers liber-

ated us, and of a prosperity, the fruits of which we are now enjoying in the numerous comforts of life, and blessings that surround us. Spare then the "groans of our forests," nor wrest from them more "oil for culture, but repay to our worn-out fields, the debt which our ancestors have entailed on us—a debt of honor, because it is one, the benefits of which we have enjoyed; a debt of interest, because it is one, the payment of which will contribute to our future welfare.

In casting our eyes over the beautiful plain, now scattered with settlements, and selected as the site for an immense metropolis, for this vast empire, who does not blame the providence of those who laid the axe to the roots of those majestic oaks which were destined by nature to have been its ornaments? And who can refrain from sneering at the vain efforts, which we have made to ornament it by the substitution of those unstart exotics, which, by the still further impoverishment of our soil, prove, like most foreign importations, to be an injury instead of a benefit to us? Compare them to our venerable oaks, which are to them as the Pantheon to a Pavilion, or as Charlemagne to a Dandy!!

Could we now at will transplant, to some favorite spot, one of the majestic plants of our forests, what price would we not be willing to give for it? five hundred, and even a thousand of dollars, would be, in the estimation of many, but a trifling sacrifice for the acquisition. And the care and attention which are bestowed on the comparatively miserable shrubs, which modern fashions have introduced, is proof of the estimation it would be now held in, were it attainable. Year after year we toil to obtain a poor substitute for that, which a little forethought might have secured to us.

But, it is not ornament alone that we should seek—utility should be our principal object.

No operation, in peace or war, can take place without the aid of wood. Every other material can be dispensed with, but wood alone can furnish the means of subsistence to man—from the rude savage, who, with his painted stick, digs the wild roots for his food, and assails with it his enemy; up to the civilized man, in the highest state of refinement, bearing luxuries on the oaks of the forests from every quarter of the world, and the thunder of his cannon, to chastise his foes, or to extend his conquest, it is really indispensable.

The present appearance of our country ought to satisfy us, that our supply of wood is not inexhaustible; and, if it does not, let us look at England, at France, at every maritime nation on the globe, and they will warn us of the necessity of economizing the means which Heaven has bestowed upon us, to extend our commerce, and add to our national glory.

The destruction of our forests is beyond the conception of those who have not witnessed it; to obtain the frames of nine line of battle ships, and twelve frigates—hundreds of thousands, nay, millions of cubic feet of live oak, suitable for every description of vessel, have been left to rot on the ground where it was cut. To obtain a single timber, it is not uncommon to cut down a whole tree, and the balance is left to the slow, but sure, operations of time.—The Caribs were called barbarous, for destroying the cabbage tree to obtain the fruit; but with how little justice can we reproach them!! "They manage these things better in France." I have adverted more than once to the practice in that country, with regard to felling timber, to the system adopted there at an early period, to preserve their forests from destruction; and, by the force of which, France is at this day enabled to supply all the wants of her navy and inhabitants, without any resort to foreign timber. It would be impracticable, perhaps, to adopt a similar system among us, but as it may aid us in forming an idea of the estimation in which timber is held where it is scarce, I beg leave to go more into detail respecting it, and presume that the long continued practice of that enlightened nation, will be of more value than any observations that could be made from my own experience.

Your inquiry was as to the "proper season of cutting timber, with views to its durability, under ex-

posures incidental to farming purposes." I have endeavoured to confine my answers, as much as possible, to the specific subject of your inquiry, but have occasionally and unavoidably digressed—for this you will pardon me—the means of preserving was a concomitant. Your object is undoubtedly an economical use of timber, I shall take, therefore, the liberty of showing, not only the time of cutting, but the manner of doing it in France, to produce this economy.

I have heard it said, that when you have a mind to cut down a tree, you should visit it three times, and at each time inquire of yourself whether you can do without it, and that after you have made up your answer, you should leave the tree standing. Whether the rule is a good or bad one, I leave you to judge from what follows.

The manner of Collecting Timber in France, for Naval purposes.

The felling of trees, fixed on as suitable for maritime purposes, is not an operation to be performed with indifference. Agents for the navy are obliged to superintend it, and the guards of the forest are bound to prevent those losses, which are often occasioned by the awkwardness of workmen.

The contractors are bound, to fall the trees which are marked by the agents of the Navy, and to cut them under their inspection, into lengths and shapes, as required by the instructions which the agents had received.

The ordinances of France forbid the cutting of trees while they are in sap. *The time most usual for felling trees for the Navy, is the decrease of the moon.** And from the 1st of November to the 15th of March, although the ordinance of 1669, has fixed the time for felling timber, from the 1st of October, to the 15th of April. These periods were specified in the law, in order to give some latitude to the agents of the marine, and the guardians of the forests, as it might so happen that the inclemency of the weather might prevent their collecting the timber at the most proper time; and in such case there would be no impropriety in cutting as late as the 15th April, as the rise of the sap would till then be retarded.—They are, however, held strictly responsible, and under no circumstances is the cutting later than the 15th of April allowable. This practice is very favorable to the putting up of shoots from the roots, and consequently to the preservation of the forests. To abandon it would tend greatly to the injury of France, where timber is scarce and valuable; and, to evade its requisitions, would prove very prejudicial to her navy, as timber, cut at the time of vegetation, decays rapidly in consequence of the fermentation of the sap.

From the commencement of the season for cutting, the agents for the navy should be constantly with the cutters, directing them how to fall the trees to the greatest advantage, and particularly, so as to guard against splitting the stock, or breaking off the limbs, &c. &c.—and, wherever the limbs on a tree are of great value, and likely to be injured, when it is felled, they should require the contractor, to cut them from the standing tree, and lower them down so carefully, as to guard against damage.

Knees are obtained either from the branches or from the roots; but, as root knees are rarely obtained in France—and, when obtained, are seldom sound, the agents or guardians of the forests, must not allow a tree to be eradicated, unless they are certain that its roots will furnish a piece of first quality timber; nor even then, without first obtaining a written requisition from the naval constructors.

With respect to knees obtained from the branches, we ought so to manage, as that the tree shall fall on the flat side of the knee.

It is, above all, essential, that the greatest possible length should be preserved to the body of the tree; and, as the lower part of the trunk, if it is sound, affords the most compact and perfect wood, it is advantageous to root up trees, particularly if the root will afford a knee.—But, trees cannot be rooted up in the Royal forests of France, without express authority—and this is only to be obtained when

* "Le temps le plus en usage pour l'abattage des bois de marine est celui du décroissement de la Lune."

it is expected, by thinning the forest, the remaining trees would be improved.

If the tree is felled with an axe, it should only be cut on two sides, and as near the earth as possible.

In all cases, the tree should be made to fall on its convex side.

When the government has ordered an extra cutting of timber, as in the marking of all the trees which are to be cut is completed, the agents and foresters divide the workmen into companies, according to the extent of the forest, and the number of trees to be felled—each of these companies has a chief undertaker, who is paid according to the established custom of the province—The naval constructors then give to the superintending officers the necessary directions, for the faithful execution of which they are held responsible.

Cutting up of the Trees.

As when the trees are cut down, the agents of the Navy mark where the branches are to be cut from the trunk in a manner so apparent, that the workmen cannot be mistaken. Such of the branches as can be converted into knees, or other ship timber, are carefully preserved; and the trunk of the tree is separated from the top agreeably to the length which the instructions call for.

It will be perceived by the foregoing details that every tree is considered in France, an object of National interest; and that the utmost formality is observed to guard against a waste of timber. Let us then take a lesson from her. Let us look forward to the day, when in this country, as now in France, the great value will be felt of that material, without which, Naval operations at least must cease; and, if the present wasteful practices continue, that day is not far distant. East Florida furnished much of the live oak for the ships now building, and the possession of that Province for the timber it was capable of furnishing, was considered a very desirable object; altho' its forests are very far from being inexhaustible.

I think it was Taleyrand who said we had not within the United States, the live oak necessary for even a very limited Navy—and he was not far wrong.

I seem to have got from farming to Naval affairs, and my apology must be found in this consideration: the period most proper for cutting timber for the Navy with regard to its durability, is also the most proper for the farmer's purposes, as timber cannot change its properties; employ it as we may, it is still timber, and may contain within it or be free from the seeds of decay, independently of the use which we may make of it. *Moisture hastens its destruction, dryness is favourable to its durability.*

With sentiments of respect and esteem,

Your obedient servant,

D. PORTER.

J. S. SKINNER, Esq.

P. S. If I can be assured that I have been the cause of saving one tree from unnecessary destruction, I shall deem myself amply compensated for the time I have devoted to the subject. D. P.

GREAT VALUE OF, AND MODE OF USING MARLE.

FROM THE SARATOGA SENTINEL, Oct. 1819.

To ELISHA POWELL Esq. President of the Saratoga Agricultural Society.

SIR—That the public may more readily appreciate the object of the following observations, I have taken the liberty of addressing them to you, and from a knowledge of the interest which you take in the advancement of useful knowledge generally, as well as in promoting the welfare of the Society over which you preside, I flatter myself that the effort will meet with your own approbation and support.

The subject of manures has engaged the attention of the practical farmer from the earliest periods of civilized life, and a knowledge of the various and important modes of fertilizing land constitutes, in a great measure, the ART of useful and profitable husbandry.

Hitherto, the *Barnyards* and the *Plasterbeds* have furnished almost the only fertilizing properties which the Farmers in this country have had recourse to, and their beneficial effects, when judiciously applied, are too well known to require any comments; the *deficiency*, however, in the quantity produced by the former, furnishes an insurmountable obstacle to its extensive use; and the *expense* and *trouble* of consequence in procuring a sufficient quantity from the latter, must forever operate against the general use of it as a manure, and will always deprive the poorer class of farmers from participating in the profits resulting from its use.

MARLE is a substance that experience has long since found to be a useful manure, and as it abounds in some parts of this country, may, without doubt, become a valuable substitute for gypsum. It is to this subject I beg leave, through you, to call the attention of our farmers.

Marl is commonly divided by geologists, into two kinds, *earthy* and *indurated*, these are often found alternating in the same bed and frequently passing into each other. Earthy Marl is of a loose friable consistency, strongly resembling clay in its external appearance. Indurated marl is of a more compact structure, it is, however, seldom so hard that it cannot be scratched with the nail and always may be cut with a knife, its colour, like the earthy, commonly resembles clay, but both are sometimes of a reddish tinge and they are often shaded with brown, black or yellow.

The essential composition is *carbonate of lime* and *clay* or *argillaceous earth*, hence it is usually termed, as one or the other predominates, *calcareous* or *argillaceous* marl. Sand is sometimes found combined with the other articles in different proportions, and small glimmering specks of *mica* are frequently observed disseminated throughout the mass.

Marl is readily distinguished from *clay*, which is the only substance it is likely to be mistaken for, by its *effervescing* with acids; if any of the mineral acids, or even strong vinegar, be dropped upon the surface of the marl, it will produce an immediate effervescence, or in other words the drop will assume the appearance of boiling; this will not be the case when it is dropped upon clay. A more simple mode may be adopted when no acid is at hand; preserve a lump of the earth to be examined, the size of an ounce ball and when it is well dried, drop it into a tumbler of clear water, if it be marl it will immediately crumble into a fine soft paste in the bottom of the glass, giving off innumerable fine air-bubbles which rise to the surface in rapid succession, but if it be clay, it will retain its shape without being materially changed by the water.

Marl is the product of both secondary and alluvial formations, hence it is sometimes found in extensive beds alternating with compact limestone or gypsum, extending to a great depth, interrupted only by thin layers of sand, coarse gravel or clay, and not infrequently, containing great quantities of the remains of both land and aquatic animals. Earthy marl is frequently found immediately beneath the soil.

In this country it is highly probable that marl may be found in great abundance, along the whole extent of the limestone range, which passes from Glen's falls in a southwest direction and crosses the Mohawk some miles above Shenectady. At Saratoga Springs it is observed to extend from the valley in which the mineral waters are situated to the borders of Saratoga lake, along the north and northwest banks of which it discovers itself in deep and extensive beds from ten to twenty feet beneath the sandy loam which forms the surface. On the plains which lay in the direction of the lake, it is found in the bottom of some wells from thirty to forty feet deep, but along the course of streams and in some valleys, it approaches nearly to the surface. In the valley at the Springs it is covered about eight feet by a *fibrous peat*.

Specimens of the marl, obtained from different places in this tract, afford the highest proof of the richness of its qualities, yielding from thirty to sixty per cent. of the *carbonate of lime*, the substance in which its principal fertilizing quality is supposed to reside. Specimens have likewise been examined from Moreau,

Vestal, Ballston-spa, and several other places which promise to be equally fertile.

In England the application of marl, as a manure, has been for a long time in high estimation, and some large tracts of land which were formerly considered too barren for even sheep walks, have been converted into farms of the first quality by merely transporting a quantity of the marl, which lay a considerable depth beneath the surface; and in the state of New Jersey, it is frequently transported more than twenty miles over land to be applied to the most light sandy soils, where its effects fully justify the expense and trouble of transportation.

The method adopted for the application of this manure is extremely simple—it should be placed upon the land late in the fall or during the forepart of winter, and left in small heaps to be pulverized by the frosts and rains of the season and early in the spring spread equally over the surface. When intended as a top dressing for clover, this process is all that is required, and, if it be applied in sufficient quantity, its good effects will be as perceptible as that produced from the most judicious application of gypsum. When the field is intended for summer tillage, it should be ploughed sufficiently often to combine the marl intimately with the soil, after which it may be either planted with Indian corn (in which case it should be seeded in the spring following) or sowed with summer grain and seeded with clover at the same time, with a view to procure a coat of vegetable manure for the succeeding year, when the land is to be fallowed and sowed with winter grain. In this way a succession of luxuriant crops may be obtained without impoverishing the land, but, on the contrary, greatly adding to its fertility and that too at a much less expense than in the mode usually pursued, with gypsum.

Marl, when applied to hard clayey lands, produces but little if any effect; but it is on loose sandy soils where its greatest effects are exerted; hence it is evident that the quantity, necessary to be applied to a given space, depends in a great measure on the soil itself. If the soil be of a sandy texture containing clay and vegetable mould, a much less quantity is necessary than on those lands which contain a greater proportion of sand. In England, where the use of marl is probably better understood than in any other country, it has been found necessary, on the most light sandy lands, to apply it in the proportion of one hundred loads to the acre, but the sandy lands in this country generally contain a proportion of clay and some vegetable remains; it is therefore probable that half that quantity, or even less, would be amply sufficient here, although on lands that have been impoverished by a long course of stinted tillage the quantity would require to be somewhat increased.

From what has been stated, it is highly probable that the whole of those lands usually termed *pine plains* or *pine barrens* in this county are generally, if not wholly, underlaid with the substance in question, at a greater or less depth, and it is possible that the owners may, with but little trouble, find a supply on their own farms and immediately beneath the very soils which require its application. It is therefore of importance that every parcel of earth, which bears any resemblance to marl, should be examined with care, as the discovery would be invaluable.

I remain, with sentiments of respect and esteem,
your's &c.

J. H. STEEL.

Saratoga Springs, Oct. 14, 1819.

THE HORSE RAKE useful in the Harvest-field; the HAND-HOE unnecessary in the Corn-field; the PLOUGH may be superseded in Arable land—Remarks by Tuscarora, censured.

FOR THE AMERICAN FARMER.

Gloucester County, Va., July 1st, 1821.

DEAR SIR—I have this year, for the first time, employed the horse-rake in my grain field, and esteem it an ingenious and most valuable

agricultural implement. So pleased was I with the performance of the rake, badly constructed as it was, that I applied it to the harvesting of my whole crop of barley and wheat, causing the horse to walk fearlessly over the cut down grain. I never harvested my grain with so much expedition, so small a loss, and such little expense, as I have done this year; and for this expedition, this small loss, and this little expense, I am exclusively indebted to the horse rake. By passing a roller over the harrowed grain at *seeding time*, I have no doubt but the horse-rake, properly constructed, will be enabled to take up in harvest every head of grain, whether long or short, that falls upon the ground from the action of the scythe; and thus supersede entirely the employment of *hired rakers*. It is very seldom indeed, that we are able, or think it advisable to cradle our winter barley; as from the yielding nature of the stalk and the gravity of the head, it lodges so much and becomes so completely entangled, that the introduction of the cradle would be attended with no inconsiderable loss of grain. But so delighted am I with the horse-rake, that I now consider cradles, mounted upon scythes, almost as a needless incumbrance.

Of the wheat which I have this year cut down with the *naked scythe*, and collected with the horse rake, I do not believe scarcely a dozen heads were lost. It was harvested in the state recommended by Mr. Brush, in the quotation as given in the American Farmer, vol. 2, page 169.

It is my intention another year, if Providence spare my life and health, to set apart a few acres for the purpose of ascertaining whether we may not entirely dispense with the use of hand-hoes in the cultivation of Indian corn, from the planting of the grain to the harvesting of the crop. I entertain little doubt as to the successful application of this theoretical idea. The advantages will be almost inappreciable.

Nor am I less persuaded as to the truth of the doctrine advanced by Maj. Gen. Beaton, that the plough may be altogether superseded in the cultivation of our arable lands. Your correspondent, Mr. Buckner, of Fauquier, in his valuable numbers on rural economy, published in the American Farmer, when speaking of Indian corn, has advanced some ideas relative to the cultivation of land, without having seen, I believe, the publication of Beaton, which are similar to those great and important truths, which the latter wishes to inculcate upon the public mind in England.

And I am sorry that a gentleman from this county, has assailed Mr. Buckner in a style rather indicating a wish to gratify a peevish and sullen fancy, than a desire to give a proper and candid construction to Mr. Buckner's thoughts upon the subject; and I take this opportunity, which you may use at discretion, of *solemnly disavowing* an attack improperly attributed to me by several in this county; an attack, permit me to say, as perfectly at war with my own feelings and reflections upon this topic, as with the conclusions of a just and liberal criticism: It is nothing more than a bantling, begotten in an unguarded hour, when privacy and opportunity favoured; the ill-starred offspring of a heedless

moment, which the *real father*, as a gentleman and a scholar, was ashamed to acknowledge!

I am with sentiments of the
highest respect, yours, &c.
S. S. GRIFFIN, D. M.

TOBACCO,

May be cured bright and safely by the use of fire, in flues of cheap and easy construction.

Procured in answer to the enquiry made by Dr. Musc, in No. 20 Vol. 3.

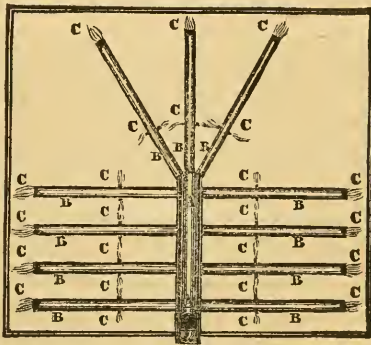
BALTIMORE COUNTY,
GRANITE HILL, September 3, 1821.

SIR:

Your letter of the 18th of August, requesting me to give you a description of the flues built in my father's tobacco house, did not reach me until to-day, or it should have been sooner answered; but I will now attempt to describe them in a manner that I hope will be readily understood and may prove to be extensively useful: for the tobacco cured last year by my father in a house heated through flues, was not only cured in perfect safety, but of an excellent colour.

The advantages of heating tobacco houses in this manner, will be so evident to all who try it, and the expense of the experiment is so trifling, that it is not worth while to occupy your paper with any arguments in favor of the plan.

Floor of the TOBACCO HOUSE, and bird's eye view of the FLUES.



AA is the main flue, commencing outside of the house and running inside half way across the earthen floor; it is 24 feet wide, and paved at the bottom; it is 24 feet high, walled on each side, and then arched over; the materials used, were brick and mortar, but soap stone would do as well, if not better, when it can be conveniently obtained. On its sides, and at its end, the small flues BBB, &c. are connected to it; these are open at the ends, and have orifices at CC in each side and end; they are five inches clear of the walls, were formed of bricks, and covered, with a good coat of mortar. The draft of air in the flues can be regulated by the iron door D at the mouth of the main flue. The flues are so far below the level of the floor that nothing is seen of them except the arch of the main one, and the covering bricks of the small flues.

These flues are similar to those constructed for and used by Mr. Painter of Montgomery County, Maryland, and were made, because we understood that his had answered every desirable purpose. The whole labour of constructing ours was performed for ten dollars, and the work might be done by any attentive man.

I remain, very respectfully, yours

CHARLES S. MATTHEWS.

September 3, 1821.

MOWING MACHINE.

A Mr. Bailey, of East Marlborough, Penn. has invented a mowing machine, which has been put in operation in the presence of a number of spectators, and cut grass very neatly, at the rate of one acre in 36 minutes. The form of the scythe is circular, about five and a half inches in diameter, and put in motion by wheels, and the whole moved by one or two horses, harnessed, as in a cart.

[National Intelligencer.]

INTERNAL IMPROVEMENTS.

It is proposed in South Carolina, to construct a rail-way between Augusta and Charleston, 140 miles in length, the expense of which is estimated at \$500,000. It is calculated that 100,000 bags of cotton, and o'er produce equal to 50,000 more, pass down this route; and that about the same amount of freight is brought back, the tolls on which, besides keeping the road in repair, would give a profit of 20 per cent. on the capital invested.

THE FARMER.

BALTIMORE, FRIDAY, SEPT. 14, 1821.

PRICES CURRENT.

Flour from the wagons, \$5 12½—Whiskey from do. 27 cts. exclusive of hbl.—Wheat, white, \$1 05 to 1 10—Red, do. \$1 a \$1 05—Corn 53 a 51—Oats, 24—Rye, 40—Hay, \$12 a \$14—Live Cattle, \$5 a 6 50—Cod-fish, per quintal, wholesale, \$3, retail 3 50 a \$4—England Beans per bushel \$1 12½—do. Peas, 75 cts—Plaster in stone \$6 per ton—do. ground, \$1 35 per barrel, 33 cts. per bushel, \$8 per ton—New-Orleans sugar, \$9 to \$12 50—Muscovado, do. 9 a \$12—America White Lead, \$12 50—Ground do. 13 a 14—Lined Oil, 75 cents—Feathers, 40 a 45 cents—Shad, new, \$6—Herrings, \$2 a \$2 25, declining—Fine Salt, 55 cents per bushel—Ground Alum do. 55 a 60—St. Ubes, 60—Cadiz, 50 a 55—Turk's Island, 75—Beef, 8 to 10 cts—Hams, 10 a 12 cents—Middlings, 14 cents—Butter, 25 cents—Peas, 50 cents per bushel—Eggs, 12½ cts—Cheese, 8 a 10 cts per pound—Tar \$2—Turpentine, soft, 2½ Cargo prices—2 ms.—Hard, 1 50 to 1 63—credit.

Pitch 2 a 2 25—Rosin, common, \$1 37½ a 1 50—Varnish, 25 cents—Spirits Turpentine, 32 cents per gal.

We have heard of no sales of Virginia and Maryland Tobacco since our last report.

A SITUATION

Is wanted by a middle aged English Farmer, who has lived upon and managed an extensive estate in Baltimore county during the two last years. He is a married man, and his wife during that period had charge of a Dairy of ten well fed cows, from which she generally made 50 lbs. of excellent butter per week. He would prefer to obtain employment as an overseer upon a large and fertile farm in a healthy district, and from his perfect knowledge of English Agricultural practices, as well as his experience in this country, both as it regards the improvement of land, the cultivation of crops and care of stock, particularly Neat cattle and sheep, he feels a just confidence that his services might be very useful and satisfactory to many persons. A line addressed to me at Baltimore, will be promptly attended to, and reference may be made to the editor of the American Farmer, who will satisfactorily answer every enquiry as to character, and qualifications.

J. KEMP.

A M E R I C A N F A R M E R .

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL. III.

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AGRICULTURE.

THE RIGHT TIME TO FELL TIMBER—WITH
A VIEW TO ITS DURABILITY.

MERIDIAN HILL,
Washington, Sept. 3, 1821. }

SIR—

I owe an apology for occupying so much of your paper, with a subject not exclusively Agricultural; but, as it is of vital importance to the country, I hope I may find some indulgence—for it is of some consequence to agriculturists whether our Ships, the common property of the nation, shall only last from ten to fourteen years, as is common in England and France, or upwards of half a century, as we have good reasons, from past experience, to believe they may: besides, the causes which produce the rapid decay in the one case, and the durability in the other, will be a solution to your enquiry—Wood, as I before observed, not changing its nature by a change of use.

The subject is interesting in another point of view—That nation which possesses the secret of preserving its ships from destruction as long even as we have preserved the Constitution, United States Constellation, &c. must have an immense advantage over those nations which have to renew them every ten or twelve years, after an expenditure of heavy sums in their repairs.

The ships above enumerated, have been preserved upwards of twenty years, and from present appearances, there is but little doubt that their preservation may yet be extended to double that length of time: and, it will not be denied, that if under the imperfect system which has been adopted with regard to them, results so satisfactory have been had, we have good reasons for believing, that if we pursue the same principles with the care which our experience dictates, the ships we are now building, and may hereafter build, will last at least equally as long—and there is no reason why they should not last much longer.

The British Navy is estimated at 800,000 tons, and the duration of their ships at eight, twelve and fourteen years: to keep up which, at the greatest rate of duration, 57,143 tons must be annually built—a tonnage equal to 28 ships of the line, at an expense of about eleven millions of dollars, and a consumption of 113,546 loads of wood—which would be equal to 170,319 trees fit for naval purposes, the growth of 4337 acres.—This is exclusive of masts, yards, &c.

Such is the state of the English Navy, from good authority; and such the nature of decay and expense to which it is subject. Now let us look at the French.

Last year the Minister of Marines states in his Budget, that the sum required for the Navy, is sixty-five millions of francs, or thirteen millions of dollars; that, with this annual allowance for ten years, the condition of the French navy will, making some allowance for the unequal durability of their Ships, be as follows:

At the end of 1821 51 Ships of Line, & 36 Frigates.

"	"	1822	50	"	"	39
"	"	1823	52	"	"	43
"	"	1824	52	"	"	46
"	"	1825	47	"	"	47
"	"	1826	45	"	"	44
"	"	1827	40	"	"	44
"	"	1828	39	"	"	48
"	"	1829	40	"	"	51
"	"	1830	38	"	"	49

The term of the durability of French Ships, is fixed by him at thirteen years; but, he states, that in many instances, from their great exposure during the construction, very little hope is entertained of their lasting more than ten years. It would appear, then, that within the ten years to which he has limited himself, all the ships now in existence in the French navy will have perished—and a force equal to thirty-eight ships of the line, and forty-nine frigates will have been built—and that the expense of her navy, during that time, will be one hundred and thirty millions of dollars; and the consumption of timber must be proportionate to what it would be under the same circumstances in England—a consumption exceeding, as I shall endeavour briefly to shew, the abilities of one, if not both of those countries to supply.

The number of tons annually to be built in ENGLAND, for the navy, the East India Company and merchant service, is 162,937, requiring 241,558 trees, which at thirty-four to an acre, will be the produce of 7,104 acres of first quality of timber land, to supply the annual consumption.

"Allowing," says Mr. Williams, "an average of eighty years growth, there ought to be now standing to meet this consumption 568,320 acres of oak, and an annual planting in perpetuity of 7,104 acres, for shipping only."

To this must be added the whole internal demand for buildings, implements of husbandry, machinery, canals, bridges, docks, &c. &c. as enumerated and estimated in the report laid before Parliament on the 13th March, 1817; by which it would appear that the internal demand may be estimated at seven times the amount of that of the shipping, which would require 3,978,240 acres of wood now standing, and an annual planting and felling in perpetuity of 49,728 acres: making the whole consumption of England 56,832 acres—and the number to supply this demand 4,545,566, with an annual planting in perpetuity of 1,932,288 trees.

The whole of the once extensive Royal Domains, (says Mr. Williams) now appropriated to the growth of timber for the navy, is stated to be about 38,000 acres! a diminutive proportion indeed! The average quantity of timber which the whole of the royal forests have furnished, for the seven years preceeding 1813, according to the report of the Commissioner, was 4247 loads per year, and in that year they supplied only 4110 loads.

On the maps of Scotland, observes the learned author of "Caledonia," there are a thousand names of places derived from Woods, which no longer exist on the face of the country. It is said of Ireland, that fifteen years ago one fourth of the profitable land was under wood: and it appears, that in 1690, she exported 1,840,000 staves of different kinds, but that in 1761, '62 and '63, she paid an average of 450,000 for annual imports of timber—Whence it appears, that Ireland is in pretty nearly the same state as England, with regard to the diminution of its wood.

FRANCE, according to Arthur Young, possesses 19,500,000 acres of wood land, which is more than three times the quantity required for the consumption of the United Kingdoms of England, Ireland, and Scotland; and yet in France a scarcity prevails. What then must be the condition of Great-Britain, who England alone, independent of Ireland and Scotland, imported in 1816, timber to the amount of £3,262,297 19s. 6d?

We may judge of the condition of France, and thence infer that of England, after perusing the following extract, translated from the Maritime and other Affairs of August 1820.

"S. Exc. le Ministre de la Marine, convinced of

the necessity of informing himself of the means of diminishing the consumption of wood of large dimensions, as well for the construction of the hull, as for the masting of ships of the line, and wishing to supply its place by some process of art, that will offer equal strength for navigation and combat, has placed before the King, the motives which make it desirable that the solution of a problem so important, should be rendered as complete as possible:

In consequence, thereof, his Majesty has decided, that a competition should be opened in the different naval ports, for the solution of the questions contained in the following Program.⁶

"Wood of large dimensions becoming scarce, not only in France, but in the greater part of Europe, we must soon discontinue the construction of ships of the line, if we cannot succeed in composing their frames in a manner that timber of a smaller size may be employed."

"It is in the hope of obtaining a satisfactory solution to this important problem, that a competition is opened on the following question."

"What would be the best manner of disposing of the timber of a vessel, so as to make it practicable to employ in the construction the smallest number of large pieces of wood without diminishing the solidity, or suppressing any of the qualities essential to navigation and battle?"

"Independent of the question relative to the hull of the vessel, a second question for the same competition is offered."

"What means are there of uniting many pieces together, to form a lever mast to supply the place of those of one piece, (the scarcity of which is every year more and more felt) giving to this composed mast all the qualities necessary for the object, which are principally lightness and elasticity?"

"The author of the memoir on the hull, that shall be approved of, shall receive a medal worth 2400 francs; and the successful author of the memoir on masts, a medal worth 1000 francs; and after a successful trial, to each, an additional medal of the value of the one they originally received.

Signed,

BARON PORTAIL.

In England, Sir Robert Seppings was knighted, for producing a means of building ships of smaller timber; and every thing goes to prove, that without a foreign supply of timber, it would be difficult for France, and impossible for England, to keep up their respective Navies.

At this time, the agents of England are in our forests; and immense contracts have been made for the supply of American ship timber.—At one time it was gravely discussed in Parliament, whether the want of ship timber in England would not render it advisable to remove their dock yards to India; but the scarcity of timber even there, and the apprehension of placing this principal arm of defence, too far beyond the reach of the government, caused them to encourage planting at home, and importation.

The following extract from the proceedings of the British Society of Arts, at which the Duke of Sussex presided, will shew the encouragement given to planting of Forest trees, and the great efforts that are making to produce timber of native growth, for naval and other purposes.

"In distributing the rewards, the first gentleman named was Charles Pysshe Palmer, esq. M. P. to whom were given two large gold medals, and a large silver medal; the first for planting 28¹/₂ ac. with 803,420 forest trees and 3,700 oaks for timber; the latter for sowing 216 bushels acorns on 240 acres.

The next was a large gold medal, given to Thomas Wilson, esq. of Fitzroy-Square, for sowing 240 bushels of acorns on 260 acres. The small or Ceres gold medal was given to Sir W. Temple Pole, Bart. Shute-House, near Arminster, for raising 306,000 oaks from acorns. To Henry Potts, esq. the large silver medal for planting 194 acres, with 328,240 forest trees."

I could, in addition to the above, adduce many instances of successful planting of forest trees in England, and the vast national importance that is there attached to their growth. The time may come when we also may be driven to the necessity of encouraging the planting of forest trees.—I have been informed by an intelligent officer who has been employed for some time past in getting timber for the navy, that to obtain the live oak frame of a single steam battery, he had to go over five hundred acres of ground. The resources of our country in this respect are immense however, when compared with those of our transatlantic friends; and the day I hope is far distant when we shall have to resort to such shifts as England and France.

But to return to my subject. The appropriation made for the gradual increase of our navy for eight years was eight millions of dollars, and it was required that for this sum, nine ships of the line and twelve frigates should be built, and the imperishable materials for three steam batteries be procured; and from present prospects there cannot be a doubt, had the appropriation been continued, that the whole would have been completed within the time limited, and for the sum appropriated. But it will be recollected that, at the last session of Congress, the amount was reduced from a million to half a million per annum, and time extended in proportion to the reduction of the appropriation. The report of the Commissioners, however, shows that the amount originally appropriated was sufficient for the object to be effected.

I will now take the liberty of making a brief comparison between our navy and the navy of France; and I am induced to do so, because some animadversions have latterly been made by the Minister of Marine, in his report to the French Parliament, with the view of raising the character of his naval administration at the expense of ours.—The same has been done in England—let this pass—but "*tu brute!*"

* In the Chamber of Deputies, on Monday last, the Minister of Marine, M. Portal, made a report upon the present condition of the French Navy, which contained some highly interesting facts. While the navy of the United States, observed the minister, consists of only 11 sail of the line and 14 frigates, demanding an expense of sixteen or eighteen millions of francs, the French navy, which comprehends 58 ships of the line, and 39 frigates, ought, with its collateral establishments, to be allowed for its maintenance above eighty millions. He added to this statement of the gross amount of the navy, the following detailed observations:

That a 74 gun ship, which, before the revolution, cost about 1,200,000 francs, (50,000*l.*) could not now be built under 1,900,000*l.* (upwards of 70,000*l.*)

That the French models retain their former excellence.

That more than two thirds of the officers and pupils of marine, whose presence ashore is not indispensable, are actually now afloat.

That the French commerce and fisheries engage about 50,000 seamen; while the royal navy which, previously to the month of June, 1820 had need of no more than 6,812, and even at the close of the year, found employment for only 7,743, is now, in the year 1821, manned by 11,736 seamen.

That the Maritime population is on the increase.

That in five years the mass of workmanship bestowed upon different men of war has been more than equal to the building of 14 74 gun ships.

That ten sail of the line, five frigates, and four sloops of war, have undergone a thorough repair.

That various important works in the Dock yards have been carrying on with assiduity, and with as much success as the limited funds assigned to the ma-

The French navy in ten years will, according to the statement of the minister, equal 38 ships of the line and 49 frigates. It is now equal to 51 ships of the line and 36 frigates; and the expense, at 13 millions per annum, will be 130 millions of dollars. This is the statement of the Minister of Marine.

Our navy in eight years can be augmented nine ships of the line and twelve frigates, and materials for three steam batteries procured, in addition to the old ships, at an expense of eight millions of dollars; and at this rate of increase, with the amount appropriated by France, (130 millions) its augmentation would be 144 ships of the line, 192 frigates, and the materials for 48 steam batteries. This estimate, you will observe, is for the gradual increase alone, and embraces only the million appropriated for that object.

For the current expenses of the navy, including repairs, the annual appropriation is less than two millions. This however shews the immense advantage we have over all other nations, and proves incontrovertibly, that with less money, in the course of ten to fourteen years, possessing, as we do, the means of preserving our ships, we may render ourselves superior to any naval power on the globe.

The large amounts applied by the British and French to their respective navies, is wasted in the repairs of their rotten and illy constructed ships; which leaves little to go toward augmenting their navies, while nearly all of ours is expended in the construction of ships of the most durable nature, and of the most approved dimensions and properties. Our ships require but little repairs—400,000 dollars in the present state of the navy is more than sufficient for that object, and the preservation of the new ships. Whether the extraordinary durability of our ships is owing to the quality of the material, or the manner of treating it, but for this investigation would be of no consequence, provided the advantage was on the side of our country. I hope, however, that I have shewn that something depends on the treatment of the timber; and that in so doing, I have afforded some useful hints to the farmer, for whom this is intended.

I have shown that the winter season is the most proper for felling trees:

That the moon has an influence on the sap; that attention should be paid to the annual or concentric circles; that salt is highly beneficial to the preservation of wood; and, that white washing with lime is very advantageous.

It now remains for me to notice another point, to wit: covering for preservation. Every Farmer will readily admit that wagons and carts, ploughs, harrows and every kind of farming implements, are better preserved under a shelter, than in the open air—the same may be said of ships; and no one will deny that the workmanship of these articles can be performed more advantageously in a comfortable workshop, than in the open air, exposed to all the inclemencies of the weather. The same rule will apply as well to the largest as to the smallest object—to a line of battle ship, as to a hay rake. But the author of the article in the Literary Repository before adverted to, differs in opinion.

The Navy Commissioners, in their report, after speaking of the advantages of covering our ships, as an effectual mode of preserving them, state, "that it is a very decided advantage, as respects workmanship, as well as materials. The artificers can always

work a full days work, at any season; and can perform more work in the same time, than they can do when exposed to the weather." On which the author of the article remarks, "that the latter of the observations just quoted, is not so clear"—to wit: "that the artificers can do more work." "An experiment of building merchant vessels under a house, was made a number of years ago by an enterprising ship carpenter of our city. Now if it had been found that labor was saved in this way, it is probable that others would have imitated the example; but no such thing has taken place. It yet remains, a solitary instance, though built more than fifteen years ago. Indeed many intelligent shipwrights think that the reverse is the fact; contending that the open air is alone the place where work can be done to advantage—that the full light of day is necessary to the workmen—that those who work in houses, cannot commence so early in the morning, nor continue so late in the afternoon—that although in wet and rainy weather, the men are not compelled to abandon their work; yet, in such cases, it is oftentimes so dark within these houses, that the work is overlooked and slighted—and that in wet weather their time is not lost, for there is always employment for the men to prepare the materials for their places. We think there is much force in these arguments, and are inclined to believe that the advantage of building under cover, will not to say the best, be so great as is anticipated in the report."

Now to prove the erroneousness of his opinions on these points, it would only be necessary to compare the pay rolls of the Portsmouth and Boston Navy Yards with those of New York, Philadelphia and Norfolk, and it will be found that the difference in ship carpenter's pay is from twelve to fifteen per cent., and that there is a great difference in the number of days work on the same object; and this difference arises from the men being able to work all their time and at their ease, whereas where no such shelter is afforded them, a much greater loss is experienced both by them and the government, in consequence of the inclemency of the weather.*

With regard to the experiment, he alludes to, of building ships under cover in merchant yards, I can say that Mr. Eckford, "the enterprising shipwright" he mentioned, considered his house a great improvement, and was fully impressed with a belief that nearly all the expense of erecting it, was saved, the first ship he built under it. So long as he continued to carry on ship building, he continued to build under the house. He has built in his house some of the

* To put this matter to rest I have referred to the pay rolls of the Boston and Norfolk yards, for January, 1820, taking a northern and a southern yard, and a winter month.

At Norfolk, 109 men did 2281 days work; and the average pay was \$1 73 cents per day.

At Boston, 109 men did 2363 days work; and the average pay was \$1 91 cents per day.

These men were ship carpenters, and worked on the line of battle ships, building at the two yards—Those at Boston worked in a house—those at Norfolk, in the open air.

The difference of pay between Boston and Norfolk, is per man, 42 cents per day in favor of Boston, making in one month, the difference of \$922 04 cts. and the difference in the number of days work performed, is \$1.—The difference per annum in favor of Boston, is \$11,908 08.—It requires three years to build a line of battle ship; and the amount to be saved by building under cover at Boston in that time, would be \$35,725 24 cents, which is more than sufficient to build a house. The house now over the ship at Boston, will no doubt last twenty years, or long enough to build six more ships under; and would, in that time, and at the same rate yield a saving of \$214,351 44, which sum is within three thousand dollars of the amount required to build the hull of a line of battle ship. I have taken two extreme cases to show the difference.

It is estimated also, that ships built under cover, are ten per cent. better than those built exposed to the weather.

finest ships that ever sailed out of the harbour of New York—some of them ships of war too—and is at this day a man of immense fortune, the fruits of his industry and economy—and thus he owes in a great measure to the aforesaid house.

Mr. Eckford superintended the building of the Ohio line of battle ship at New York; and when her keel was laid, he urged the Navy Commissioners to build a house over her; but the funds of the Navy would not at that time justify the expense. The Board have since become so well satisfied of the advantages resulting from this mode of building, that they have commenced the construction, in all our building yards, of houses to shelter our ships and our workmen. The circumstance of Mr. Eckford's example, not having been followed in private yards, is not surprising, when it is known that the erecting one of these houses, costs from 12 to 20,000 dollars. An amount, which but few ship carpenters in our country, can spare from their capital for such an object.

The objection on account of darkness, does not hold good. The houses are sufficiently lighted in all their parts; and I will venture to assert that during the building of a ship under cover, the men enjoy more of the advantages of light, than when built in the open air: for, in the one case, the interior is finished before the decks are laid, with all the advantage of light from above. Whereas, in the other case, the light is excluded by the laying of the decks, a necessary precaution to the shelter of men, and the protection of their work from the weather. Much of the interior work of a ship, built in the open air, is done by candle light.

But let us see what other nations have done, and are doing.

The Venitians had covers for all of their ships—in consequence of which, they were always in good condition; and she thus became mistress of the seas.

The Russians, Swedes and Danes cover their ships with painted awnings. England is at this moment, building covers over all her docks and ships on the stocks; and France is following her example. We have heard of a Venitian ship of the line, remaining sixty years under cover on the stocks without decaying. In France we are informed by the Minister of Marine, that ten ships of the line then on the stocks—which had been there, uncovered, from seven to thirteen years, exposed to the inclemency of the weather, had been examined; and that there was every reason to believe that in consequence of their very decayed state, it would be necessary to abandon most of them, as unworthy of finishing—and that there were none whose durability could be estimated beyond ten years.

Mr. Ch Dupin, a member of the Royal Institute of France, and superior officer of Maritime Engineers; a gentleman distinguished for his abilities, who had visited all the dock yards and arsenals of England and of the Continent, by order of his king; and who has published a highly interesting account of his journey, which has attracted the attention of all the world—this gentleman, has made the following statement, in a report on the progress of Naval Science in France, since the peace, read before the academy of sciences, March 27th, 1820.

"In the Port of L'Orient, a new shelter (*un abri nouveau*) more splendid and vast, than those which concealed the mysterious fleet of Venice, will permit at all times and in all seasons, the workmen to construct a ship of the line. Sheds or houses as spacious as commodious, but more simple and less expensive, will be erected by little and little, (*peu-à-peu*) over all the frames on the stocks. Thus, in time of peace, will be preserved, without deterioration, the half finished hulls of the ships of the state; and when the moment in which they may be wanted shall arrive, our vessels of war can be finished, launched and sent to sea in a few days, to seek a fortune, which we shall have during peace, strove to render successful."

Charnock, in remarking on the practice of the Venitians, and the cause of the great durability of the early built ships of England, observes: "As to the durability of shipping and the means taken to preserve them, the former seems to have varied in its

extent as much as it has done within the last forty years, and probably owing to the same causes: the latter was conducted on that principle of keeping vessels dry, or secure, by some means or other, from the effects of the weather, which has never ceased to be practised but to the injury of the state, be the expense of the care and precaution what it might."

In a few words Mr. Dupin and Mr. Charnock, have expressed all that was necessary to be said on the subject of building under cover; and with them I shall close my remarks on the article in question, which I have been informed, since I have undertaken its examination, is the production of a gentleman highly and deservedly distinguished for his literary and scientific acquirements.

His intentions appear to have been of the most friendly nature, and I beg leave to assure him, that my remarks have been dictated by the same spirit.

Having shewn the deplorable condition of England and France, with regard to timber for naval purposes—a condition which their own want of foresight has produced—I shall endeavour, as far as my information will allow, to shew the condition of our country in this respect, and I think I shall make it appear that an absolute necessity now exists for greater economy in the use, and for means to be devised to prevent the destruction of the timber suited for naval purposes, if we hope to become permanently a naval power.

If we not acquainted with the subject can form an idea of the havoc that has been made, and is still making among our live oak trees.

Very respectfully,

Your obedient servant,

D. PORTER.

Rotation of Crops, BY THOMAS MARSHALL, ESQ.

A Paper laid before the Agricultural Society of Virginia.

No. 1.

Oak Hill, Fauquier, October 14, 1818.

SIR—The reluctance manifested by practical agriculturists, to communicate written information on any of the various subjects which fall under their observation, has been a theme of general and very just regret. The example of many northern farmers, who have made useful contributions to their respective societies, ought not to be lost upon us; for in this way, perhaps, more than in any other, have improvements been generally diffused, and the acquisitions of individual skill been added to the common stock of useful and experimental knowledge.

In making the following observations, I have but little hope of suggesting any thing new or instructive; but I shall have the satisfaction of drawing the attention of the society to a subject of radical importance, and perhaps of eliciting observations from others more competent to do it justice.

Of late years, more attention, than formerly, has been paid in our state to a proper rotation of crops; but still, the subject has not been sufficiently regarded, and has been considered by too many as belonging rather to the theoretical, than to the practical and useful branch of agriculture. Such, however, does not appear to be the opinion of our society, and on this account, I feel the more encouragement to hazard the following remarks, on

"A rotation of crops, consisting of wheat, clover and Indian Corn."

The question which presents itself at the threshold of the enquiry is this; which of the grain crops above mentioned is most important to the farmer? So much depends upon soil, situation, and numberless other considerations, that no general answer can be given. Each farmer can determine readily for himself, and upon the result of his determination will depend in a great measure the propriety of any system he may adopt. Upon very light soils, or on lands lying in the vicinity of towns, or on the banks of navigable streams, a farmer may do well to cultivate a considerable part of his land annually in corn;

but where these circumstances do not exist, it is certainly unwise to raise more corn than is deemed adequate to the supply of the farm itself. In this section of the country, wheat, grown upon fallowed land, is in every view the most important crop; and to lands of similar situation only, are the following remarks applicable.

Having premised these observations, I will now suppose a farm containing five hundred acres of arable land, and consider into what number of fields it can most advantageously be divided, and by what course of crops those fields can most profitably be cultivated.

To arrive at a just conclusion, it would seem necessary to consider in succession the different modes which may be adopted, and to point out the following advantages and disadvantages incident to each. To say nothing then of the old system of three fields with the course of cropping consequent upon it, the evils of which are but too apparent; let us suppose the farm divided into four fields of 125 acres each. The first objection to this division is, that by far too large a proportion of the farm will be devoted to the culture of corn; the second, that too much labour will be required; the third, that no ground will be left for fallow. The last objection may indeed be obviated by cultivating annually three fields out of four, and making the crop of corn intervene between the two small grain crops; but few farms could sustain so impoverishing a course, and the rapid deterioration of the soil would soon prove this rotation to be as imprudent as the old system of three fields. The only advantage which this division enjoys over others remaining to be considered is, that it requires less cross fencing; but as every one knows that land is pastured by all kinds of stock, with the greatest benefit to themselves and the least injury to the soil, when they can be frequently shifted from one field to another, no farmer will be disposed to forego this advantage, and have recourse at the same time to an exhausting course of crops, for the sake of economy in fencing. On the contrary, if he should find by increasing the number of his fields, that he will at once improve his resources for grazing, and augment the quantity of the most valuable grain, he will spare neither trouble nor expense in the collection of materials for that purpose. In this section of the country, a practice prevails very generally among the farmers who have made sufficient progress in the improvement of their lands, of purchasing in the summer or fall of every year, poor cattle, which are driven from the western and north western sections of this state, or from the adjoining states: keeping them during the winter upon the offal of the grain crops, with the occasional use of hay; fattening them upon grass in the ensuing summer, and selling them to the butchers, who come from the sea-port towns to purchase them. This trade, if it may be so called, has heretofore been a gainful one, and beneficial to the community at large. It enables the grazier to turn to good account the grass and hay with which his farm abounds; to manure his fields extensively; and at the same time to prepare them in the best manner for the plough. This last advantage cannot be properly estimated by any but those who have attempted to turn in a heavy crop of clover and blue grass with a small admixture of weeds, as a preparation for a crop of wheat. No crop, perhaps, depends more for its success, upon nicety of cultivation; and the ground cannot be properly prepared unless those obstructions be removed by grazing or by mowing; of which the former is by far the more convenient and profitable mode.

Suppose, in the next place the farm to be divided into five fields of one hundred acres each. There are two rotations suited to this division, which, supposes the same quantity of ground allotted to corn, and the same quantity to wheat, in each; but the arrangement of the crops is different. The first is as follows: 1st. corn; 2d. wheat; 3d. clover; 4th. wheat; 5th. clover. The second, which is generally adopted in this part of the country, is this:

1st. wheat; 2d. corn; 3d. wheat; 4th. clover; 5th. clover. The latter mode is preferred because the corn is planted on stubble ground; which is allowed to be

a great advantage, although by no means peculiar to this system. Both courses are esteemed, because corn occurs sufficiently often to clean the land without impoverishing it; and either may be adopted where circumstances render the cultivation in corn of so large a portion of the land, as one fifth, necessary or profitable; but where these circumstances do not exist, the farm may certainly be cultivated with less labour, particularly manual labour, and greater profit to the proprietor, if the quantity of ground devoted to corn be diminished, and that allotted to fallow proportionally increased. With five fields, such a change cannot take place, for one or the other of the above courses must be adopted; unless indeed only a part of a field should be cultivated in corn at a time, in which case a very long period must elapse before the other part would come into corn; and thus one of the principal advantages ascribed to the five field system would be lost.

Let our farm be now supposed to be divided into six fields of eighty-three and a third acres each, and a great variety in the mode of cultivation presents itself. I shall notice but two rotations. The first, which is generally recommended, is the following:

1st. corn; 2d. wheat; 3d. clover; 4th. clover; 5th. wheat; 6th. clover. One advantage which the six field system is thought to possess over all others is that it furnishes the best period for the return of the corn crop, so far as the proper cleansing of the land is considered; but, according to my experience, one sixth part of the land is more than enough for corn, and entirely too little for fallow.—The above course is faulty in this respect; that the corn is not planted on stubble ground; an error which may be corrected in the following manner:

1st. wheat; 2d. corn; 3d. wheat; 4th. clover; 5th. clover; 6th. clover.—But this course is liable to another objection, that the ground lies too long in clover at a time, and by this means must become full of troublesome weeds, and present serious impediments to the plough when the time for breaking it up recurs.

An excellent modification of this system has been adopted by Thomas Turner, Esq. of this county, which avoids both the errors just mentioned, and admits annually the following of two fields out of six. This is effected by sowing small grain among the corn, and reserving the field for fallow in the ensuing year; but I regret that I am not sufficiently acquainted with the details of the plan to give you a more satisfactory account of it.

The next system in order is that of seven fields; in which case each division of the farm will contain 71 3/7 acres. Two courses may be selected as applicable to this system.

1st. corn; 2d. wheat; 3d. clover; 4th. wheat; 5th. clover; 6th. wheat; 7th. clover.

1st. wheat; 2d. corn; 3d. wheat; 4th. clover; 5th. clover; 6th. wheat; 7th. clover.

The first of these is the preferable mode except that the advantage of planting corn on stubble ground is lost. Both are valuable courses, and highly to be recommended where circumstances render it necessary to have as much as one seventh of the land in corn. The only objection to which the seven field system is liable, is this: that it does not admit the maximum of fallow of which the farm is susceptible.

Let us, then, in the last place, suppose the farm to be divided into eight fields of 63 1/4 acres each, and the rotation to be adopted will depend in a great measure upon the condition of the farm, and upon the comparative profits of grass and grain. This division admits of important changes in the rotation of crops without the alteration of cross fences; and the farmer may proceed from a lenient course of crops, in which only two fields are annually fallowed, to one in which greater demands are made upon the soil. In either case, one field only is allotted to corn, a great portion of which may be manured, and the produce will be found sufficient to supply all the wants of the farm. For let us suppose the average produce of the corn field to be six barrels per acre: the crop will amount to 373 barrels; an ample supply for the labour necessary to cultivate that quantity of ground in corn, and to fallow three times that quantity for wheat. Should the profit on stock be found more considerable than that arising from the culture of wheat, less labour

will be required on the farm, and there will be a surplus of corn.

The first course applicable to this system is as follows:

1st. wheat; 2d. corn; 3d. wheat; 4th. clover; 5th. clover; 6th. wheat; 7th. clover; 8th. clover: yielding four grain crops, two of which are upon fallowed land, in eight years. A variety in the course might be suggested, by supposing the corn to be planted on clover ground instead of stubble; but as this would not change the number of grain crops in any given year, it is unnecessary to do so. The second course, designed for a more improved condition of the farm is this:

1st. wheat; 2d. corn; 3d. wheat; 4th. clover; 5th. wheat; 6th. clover; 7th. wheat; 8th. clover: yielding five grain crops, three of which are upon fallowed land in eight years. Consequently 5/8ths of the farm will be annually in grain until the termination of harvest; and as it would probably be found necessary to break up one of the clover fields before that period, it is apparent that this course is less favourable to stock than the preceding, and must be discontinued so soon as wheat shall become the less valuable article. That many farms in this state are able to sustain this course of cropping, will be evident by comparing it with the system of five fields, which is in general use. In the one, the most exhausting crop, occurs but once in eight years; in the other, once in five; while the quantity of ground annually cultivated in the first, exceeds the quantity annually cultivated in the last, only by one fortieth of the whole, or two and a half per cent.

With a view to test the comparative profit of the different courses referred to in these remarks, we will suppose, that in each instance every acre of ground shall produce six barrels of corn, valued at three dollars per barrel; every acre of fallowed ground, twenty-two and a half bushels of wheat, estimated at one dollar and twenty-five cents per bushel; and every acre of corn ground, fifteen bushels of wheat, estimated at the same price.—The fallow crop is fairly stated at 50 per cent. more than the corn ground. I have generally found it to be nearly double. The result will be as follows:

No. of fields.	Bkls. of corn.	Bush. of wheat.	Produce.
Four	750	1875	2,187 50
Five	600	3750	6,437 50
Six	400	3125	5,475 00
Seven	423 1/7	4215 2/3	6,612 50
Eight	375	3750	5,812 50
	7 1/2	5185 1/4	7,575 31

From this statement it would seem, that the gross revenue derived from cultivating the farm in the manner last proposed, exceeds that arising from any of the rest, supposing every article to be converted into its equivalent in money; but, when it is recollected that corn is by no means so saleable an article as wheat, that more hands are required to make it, and of course more mouths are ready to consume it; and that the economy observed in using it is always in the inverse ratio of the quantity made; this system of eight fields must be allowed to have a still greater advantage over the rest than would appear from the above statement. Again, when the corn field is large in proportion to the residue of the farm, no farmer in this section of the country could sow wheat upon it in due time without a material abridgment of his fallow, or a considerable augmentation of the labour employed upon his farm. Four men, with as many horses, and three hives to each, can put in one hundred acres of fallow ground prepared for seeding in four days; whereas twelve ploughmen cannot do as much upon corn ground in the same time: And as the time for seeding is much circumscribed by the Hessian Fly, a strong argument is derived from this consideration in favour of any system which admits of the most expeditious seeding, and of course the greatest proportion of fallow.

In the foregoing observations on the various systems, no notice has been taken of a difficulty, common to them all, that provision is not made for a supply of hay for the use of the farm. Unless the farm should possess the advantage of a sufficient quantity of mead-

dows in addition to the arable land, this difficulty will be sensibly felt; and in those systems which require but few fields it would probably be found necessary to make temporary subdivisions, or to have permanent lots for the purpose of supplying hay. The quantity of ground required for this object, on well improved land, is not considerable. In a farm of five hundred acres, twenty or twenty-five would be sufficient. In the system of five fields, therefore, by way of example, too great a sacrifice of pasture would be the consequence of devoting an entire field to the scythe, and it would be found desirable, if not necessary, to enclose a part of it, a resource not only for hay, but for clover seed. In the system of eight fields, if the first mentioned course be adopted, less difficulty will be experienced than in any of the rest, because the number of fields in grass will allow the use of any one of them for these purposes, or such a portion of it as may be required, without material inconvenience. Should the second course applicable to that division of fields be adopted, the inconvenience may be remedied, without a temporary fence, in this manner: instead of following the whole of the field in the eighth year for wheat, leave twenty-two and a half acres unbroken, and forty acres of it only will be in wheat in the ensuing year. The part remaining in clover will furnish an adequate supply of hay and clover seed, and the proceeds may be safely stated to be the same in value as if the produce had been wheat. The year afterwards, the whole field will be planted in corn, and I would suggest the propriety of sowing only so much of it in wheat after the corn, as has been pretermitted in the preceding fallow. This part of the field having been less exhausted, might, with the aid of careful cultivation be made to produce a very profitable crop. The residue of the corn ground may be sown in rye; and when it is recollected that the rye crop can be put in with much greater expedition than wheat, (cultivators answering the purpose of ploughs,) the greater latitude, is admissible in the time of sowing it, and much less expense in securing it at harvest: the actual profit will be found nearly the same as in the preceding statement, and the trouble considerably less.

But I should be strongly tempted to abandon the practice of sowing small grain of any kind upon land just released from the exactions of a crop of corn, and forego immediate profit for the more durable advantage derived from the greater improvement of the soil, if I could be satisfied, as assured by some, that clover will succeed when sown upon corn ground, without the aid of what is called a sheltering crop.* An experiment of this kind would be most likely to succeed upon ground previously harrowed: and should it prove satisfactory, the system of eight fields would appear under a new aspect. Not more than one half of the land would in any case be occupied, in any given year, by grain; and not more than one eighth by corn. From the greater proportion of fallow, the gross profits accruing to the farmer would be scarcely inferior to those derived from the cultivation of three fifths or four sevenths of his land, while the expenses attendant upon it would be considerably less; every operation of the farm would be conducted with ease and satisfaction to the proprie-

*The following method is recommended by Mr Farrow, a member of our society and a farmer of high reputation, when it is wished to avoid a crop of small grain immediately after corn, and at the same time ensure the growth of clover. In the spring after the corn is taken off, sow oats, at the rate of one half bushel or three pecks per acre; harrow them in with heavy harrows, and upon the ground thus prepared sow clover seed and plaster. The oats will be a fine pasture about June, and should be fed on just before they would come into head. Let the stock be then taken away, and the oats will spring up again. The field may then be pastured a second time when the oats and clover mixed will furnish a rich repast. The next year no oats will appear, and the clover will enjoy exclusive possession of the soil.

tor; and his profits annually increase with the increasing value of his land.

I am, respectfully, your obedient servant,

THOMAS MARSHALL.

Dr JOHN ADAMS, Secretary
of the Agricultural Society of Va.

**Remarks on his own system, and description of a
Coultter Plough—by Thomas Marshall.**

OK-HILL, Fauquier, Aug. 28th, 1821.

Mr. Stimmer—In forwarding the preceding essay on a Rotation of Crops, &c., I cannot but express acknowledgements for the manner in which its republication has been requested by yourself and Mr. Minor.

This gentleman, in whom I am happy to recognize an early friend, expresses a desire to know "the details, and the success of my eight field system." A long series of years would be requisite to enable me to speak with certainty on this subject. The opinions of all farmers, and their deductions, even from matters of fact, receive so deep a tinge from theories on which they have permitted themselves to speculate, that the conclusions at which they arrive, must generally be received with some allowance. Time must add his sanction, before they can be implicitly received. At present I can safely say that nothing whatever has occurred to change my opinions on the propriety of adopting a rotation requiring eight fields, in preference to any other, on a farm where one eighth will yield a sufficiency of corn, and where there exist those inducements to fallow, which are noticed in the essay. It is true I have been prevented by several causes, which it were needless to specify, from following three fields per annum, which I considered as the *maximum* of the fallow crop; and it is possible that insuperable difficulties might have occurred in practice. At the same time I am convinced that there is no other system which admits so large a portion of fallow, although it may not be desirable to adopt it in full extent, unless the price of wheat should justify the sacrifice of ordinary considerations. Whenever such an inducement shall occur, a farm of eight fields may be cultivated, without any new arrangement of fences, in a manner calculated to yield the greatest increase of wheat; and in the mean time a rotation may be pursued, which is at once calculated to ameliorate the soil, and to yield an abundant recompense for labor.

My farm contains about 580 acres of arable land; and I find that an eighth part yields me an ample supply of corn. The produce may be safely stated at an average of six and a half barrels per acre. This year, in consequence of early plowing, &c. I estimate the crop at more than seven barrels. This, in addition to the crop of rye and oats grown on corn ground, enables me to feed my horses and fatten my pork without difficulty. Twelve horses are required to do the necessary labour of the farm, though more are desirable, and in fact are used. We find abundant employment for them about seed time. The number of men and boys, pretty constantly employed, amount to 15; a woman and girl contribute their labour in the warm season. I find twelve work oxen, a powerful auxiliary to my teams, and use them during the summer for carting in grain, &c. in the fall for breaking up corn ground, and other purposes. The proportion of corn ground, seeded in rye and oats, does not exceed one half.

In regard to the preparation for wheat, my plan is to break one field before harvest; selecting that which has the most blue grass. This can be easily effected by two ploughs drawn by three horses each—After harvest, the other field may be followed by the same force, before the tenth of September; and as the ground generally becomes very hard in August, I have had recourse to a mode of obviating this difficulty, which is at once so efficacious, and so practicable by every farmer, that I cannot omit this opportunity of recommending it to public attention.

In lieu of a plough, one of the hands is furnished with a coultter. With this, a track is made for his companion, who follows with a plough, and completes

the furrow of six or seven inches deep and fourteen or fifteen inches wide; with such little labour comparatively, that two horses might execute the work with a plough of proper shape and dimensions. But as three horses are required to the coultter, I think it proper to use six for the double operation, and to alternate the labor. The coultter is never more than one round in advance of the plough; and the off horse in either team, walks in the furrow. The effect produced by this distribution of the labor is wonderful. The horses move with a brisk step, nearly two miles an hour; are seldom interrupted; and show manifestly that they are much less fatigued than when each team is required to perform the entire operation. From repeated observations, I have satisfied myself, that the six horses, employed in this manner, can execute at this season, nearly, if not quite, two acres per diem of perfect ploughing, upon land which I formerly regarded as almost impenetrable. Accident led to this improvement; and I claim no other merit in the business, than persisting in a novel experiment, in despite of the difficulties by which it was at first attended.

It should be observed that in both coultter and plough, the horses work abreast, and are attached in the same manner. A description of this manner may be found in the "American Farmer," having been given in a letter to Mr. Jeffreys, and fully illustrated in an editorial note. To most of your readers, who have occasion for three horses to a plough, the mode has probably been long familiar.

The construction of the coultter is of so much importance, that I may be excused for giving a description of one, which has been found to answer perfectly.



The beam is made of a forked limb, about the size of a large plough beam, shaped in such a manner, that the back of the coultter may have a firm support; the length of the beam, six feet six inches, and the greatest width, twelve inches. The coultter mortise is cut about four feet from the end, to which the clavis is fixed. To prevent the coultter from shifting to either side; the back of it is let into a groove in the lower part of the beam just below the mortise. This groove is faced with a strap of iron to prevent the back of the coultter from wearing it. In the shank of the coultter, several holes are made, through one of which, when the proper depth is decided, an iron pin (secured to the beam by a small chain) is put to prevent the coultter from being driven upward. In addition to this a wedge, driven through the mortise, in front of the coultter, effectually secures it. Two handles, fixed in the same way as those belonging to a shovel plough, complete the implement. Several rivets may be necessary to prevent the beam from splitting. I had forgotten to observe that the bottom part of the beam, where it comes in contact with the surface of the ground, should be faced with iron, and should be made as broad as the thickness of the stuff will allow.

I have said that the following of the second field may be completed by the 10th of September. Experience has taught me, that it should be completed by that time, as the *smut* is apt to make its appearance on land broken afterwar's. Before the arrival of this period, it is necessary to commence crossing the first field; for should this be foul at seed-time, a full crop need not be expected. In general, this operation may be effected, especially if the summer growth has been fed down, by double shovels, drawn by one or two horses, according to the nature and condition of the soil. That portion of the field, which was broken up at a very early period, will probably require the bar-share. It would be practicable to plough more than one field before harvest; but it is not desirable

on account of the pasturage, especially, as the delay is incident to hay-making, gathering clover seed, &c. retard the time of turning stock into the stubble fields.

I have thus endeavoured, as concisely as possible, to answer the enquiries of my friend, Mr. Minor. Allow me now to notice two objections to the "eight-field system," which have been frequently suggested. First: Three consecutive crops, must unavoidably impoverish the soil. I have not found this to be a fact. That they reduce it, is true; and the third crop of the series is comparatively light; but there is an advantage gained of such paramount importance, as to more than balance this inconvenience. The soil is so thoroughly cleansed, and put in such fine order for the reception of the seed, that a failure of the clover crop, rarely occurs. The restoration of the field to its accustomed vigor is astonishingly rapid. My soil, it should be remarked, is for the most part, a light loam; replete with fragments of stone; very compact, and at the same time very friable;—compact before it is broken by the bar-share, and easily pulverized afterwards. Secondly—An objection is made to the expense and labor of enclosing eight fields; no doubt this is a serious, and in some cases, an insuperable difficulty. For my own part, I think the advantages of the system, such as to countervail the objection where it is surmountable. I should find much greater labor and inconvenience in the annual cultivation of more corn than necessary, and sustain greater loss by the following of a smaller portion of my land. There is, however, one mode of obviating the difficulty, which I will suggest: at the same time observing that I would prefer a separation of each field from all the rest. If the farmer be content to follow only two of the eight fields per annum, four enclosures are sufficient; as may be seen by an inspection of the following table, where No. 1 and No. 2, constitute one field A without a dividing fence; No. 3 and No. 4, another field B; No. 5 and No. 6, a third field C, &c.; so that it is perfectly practicable to carry on a rotation requiring eight fields or subdivisions, on a farm with only four enclosures. One of these divisions may be wholly devoted to pasture before harvest, and the half of it broken up afterwards.

Years.	A		B		C		D	
	1	2	3	4	5	6	7	8
1821	Wheat	Corn	Rye	Clover	Clover	Wheat	Clover	Wheat
	Corn	Rye	Clover	Clover	Wheat	Clover	Clover	Wheat
'23	Rye	Clover	Clover	Wheat	Clover	Clover	Wheat	Corn
'24	Clover	Clover	Wheat	Clover	Clover	Wheat	Corn	Rye
'25	Clover	Wheat	Clover	Clover	Wheat	Corn	Rye	Clover
'26	Wheat	Clover	Clover	Wheat	Corn	Rye	Clover	Clover
'27	Clover	Clover	Wheat	Corn	Rye	Clover	Clover	Wheat
'28	Clover	Wheat	Corn	Rye	Clover	Clover	Wheat	Clover

In the first year, No. 7 and No. 8, may be pastured before harvest: No. 2 to be followed after harvest: in the second year, No. 3 and 4 will be pastured in like manner—in the third year, No. 5 and No. 6, &c. &c.

Respectfully, yours, &c.

THOMAS MARSHALL.

FOR THE AMERICAN FARMER.

FLAX DRESSING.

WHEN I first promulgated the account I had received of the English practice of dressing flax, on the dry system, I published all the information I had, merely as a subject worthy experiment by its suitableness in our country, or the infallibility of the process. I left, as was most decorous and prudent, the decision to my agricultural fellow citizens; pronounced as they were, of all the intelligence I had. Having

communicated the subject to *The Philadelphia Society for promoting Agriculture*, that society took the matter up with the zeal it always evinces for the public prosperity. It must be recollected, that its views were never extended further than obtaining the small machines calculated for farming families. That invented by *Bundy*, was the one whereof we had the most direct information, as fitted for our object; though there are several others, and probably some superior to it. Every effort was made for its importation; but it could not be obtained. The society procured a small machine to be made here. That machine is complicated, and not so satisfactory as was anticipated, though it is an ingenious piece of mechanism. It cost forty-five dollars. It will break, with a man and a boy to work it, forty pounds per day, of unrotted flax; and was sufficiently efficient to prove the practicability of the dry process.

Having heard, that in *England*, neither the machines, nor the system, received the encouragement expected in the outset, I took measures for obtaining the true state of the facts, concerning both the machines and the practices. I accordingly wrote to several intelligent correspondents; but have received an answer from one only. Mr. *Holdich*, who writes the letters whereof the following are extracts, is the able and well informed editor of the *British Farmers Journal*—a paper of merited celebrity. He is in a situation to know, more than most others, the general state of all subjects connected with Agriculture. I had pledged myself to give what information I, from time to time, received; having no desire to lean against, or overweeningly to cherish, any candid representations, either favourable or otherwise, to the very important object. My own opinion of the practicability, and the highly beneficial uses of the machines and system, is not changed; although I find *Bundy's* machine is only used for small operations by gratuitous or cheap labour. He writes, in a letter transmitted by Mr. *Holdich*, that he has invented a large machine, moved by steam or water power, which he is confident will answer the purpose on an extensive scale; and measures have been commenced to obtain the advantages of it. The specimens sent by Mr. *Holdich* are irrefragable proofs of the superiority of this mode, over the old practice. But if the whole of the means to effect the dressing intirely, according to the new system, cannot be obtained; or if it be found, on fair experiment, that the expense forbids the use of the whole of the new practice; such parts may be adopted, as circumstances permit. There is no doubt of the superiority of *steeping*, over the hazardous, dilatory, and uncertain mode of *dew rotting*. For *steeped* flax, 50 per cent. beyond the price of that *dew rotted*, has been given by a large manufacturer.

It seems that *Sir John Sinclair*, most probably taking his bias from some large manufacturers, who, from the beginning, have discouraged the inventors of flax machines; and reluctant farmers, wedded to old customs, writ unavourably to the success of the new system. But, intelligent, estimable, and worthy of confidence as he is, *Sir John* may be, as he has been,

operated upon by the prejudices of his informants. In the first edition of his valuable *Code of Agriculture*, he decisively condemns the *Drill Husbandry*. But, subsequently, at Mr. *Coke's* Holkham Sheep Shearing, convinced by facts, and out-reasoned in argument, he, with becoming candor, acknowledged that he had been in error. It is to be hoped, that, in relation to the flax dressing, he may have another opportunity of laudable recantation. As to *British farming prejudices*, they have long been proverbial. *We know* the value of our *scythes* and *cradles*. Yet, so obstinate are the prejudices of *British labourers*, and common farmers; that a spirited and worthy agricultural friend in *England*, to whom I sent a complete implement, some years ago, cannot prevail on his own hirelings, or his neighbouring farmers, to use it. It is no wonder, that more important implements should be reprobated.

Sir John Sinclair, however, very justly recommends *steeping* in preference to *dew rotting*; and observes that it may be accomplished in our climate in a shorter time, than the *European climate* permits. This has been recently proved; and has been long known to me. In *England*, ten or fifteen days *steeping* is necessary; but, with us, one half the time, and often much less, is required. *Dew rotting* is not to be regulated by human means; as it depends on circumstances we cannot control. But *steeping* is under our own command; and can be managed, with prudence, care, and attention, according to our will.

I am persuaded by evidencing the results of some experiments, that *boiling* the flax, either from the brake or swingle, will facilitate, if not complete, its *bleaching*. For household manufactures, (all I aimed at) soap-suds, with a little addition of lye, would be amply sufficient. In large establishments, steaming, and the use of the muriatic and oxy-muriatic acids, whereof the muriate of *potash*, (a stronger alkali than necessary in small concerns) is a component part, will, no doubt, be continued.—*Bleaching*, in this and other modes, is a *business* in *England*; and, most probably, *Bundy's* bleached flax, which superseded this branch of the trade, was one of the objections with large dealers, who would not pay, in the price of the article, the reasonable expense of *bleaching*, by *boiling* precendently to *spinning*. This must be done in small parcels; and the exact mode requires some experience. But when it is considered, that one fourth more of the article is gained by the new process—all expense and labour in *boiling*, and other operations, is far overbalanced; and this could be materially lessened in large concerns. A Farmer has his ashes for soap and lye, sufficient for his purposes. *Bundy's* *boiling* and *bleaching* is more tedious and complex, than other practitioners, or the system require. *Salisbury* alleges, that *washing*, faithfully, in strong suds, is sufficient. And, so it appears, in the report of the *British committee* of the House of Commons, in relation to the subject of Flax Machines.

Even agricultural associations can do little; unless spirited individuals, unprejudiced and unappalled by discouragements, assist them. If individuals will not risk the expense of *Ma-*

chines, agricultural societies, now patriotically numerous, should apply themselves to this object; than which nothing can be more worthy of personal exertions and pecuniary aid. There is no cause for discouragement forbidding to American enterprise and zeal, in prosecuting, at no formidable expense, experiments on a system so evidently superior to the old practice. The cost of a small machine is about five guineas; and one would serve several neighbouring farmers; who could jointly afford even a much higher price.

Bundy's specimens are all inviting. But the No. 4 is in whiteness, equal to any, and superior to most bleached fabrics I have ever beheld. It is soft as silk; and capable of being woven into the finest webs.

I do not regret the instrumentality I have had in attracting the public attention to this subject. Although my well intentioned endeavours, aided by more competent auxiliaries, have not been crowned with complete success, important benefits have already appeared; and great improvements on the old mode have commenced. Among them is a *Brake* and *Scutch* for *steeped* flax; which promises, in its performances, to exceed any *British machines*. Notwithstanding that *British prepossessions* have been transplanted here; American genius may yet accomplish the perfect preparation on the dry system; or, by *steeping* in place of *dew rotting*, and other improved operations, facilitate our highly momentous pursuit.

Whitney experienced as much mortification and harsh treatment, when he introduced his *Cotton-gin*, as *Bundy*, or any other inventors of machines can suffer. And yet *Whitney's* invention has triumphed over all prejudices,—greatly enriched individuals,—and incomputably increased the public wealth and prosperity. Aided by persevering and patriotic agriculturists; and, it is to be hoped, by liberal and enlightened manufacturers, some ingenious mechanist may furnish every thing we desire. No doubt every calculating inventor will contemplate machines simple, cheap, readily repaired, and easily worked, for farmers. For more extensive operations, it is not to be expected but that they must be more complicated and costly.

At the request of some members of the Philadelphia Agricultural Society, Mr. *Whitney* has the subject under his consideration. Should he turn his attention to it, and produce a Flax Machine equal to his *Cotton Gin*, he will doubly entitle himself to the gratitude of his country.

Mr. *Holdich's* account of *Bundy's* discouragements, is truly lamentable. But he, by no means, deems them objections to the principles of the system, or the efficiency of the practice. He is to make inquiries into the state of things in other quarters, where larger and other machines are used; and inform me of the result. He mentions *Bundy's* improved machine, as one likely to gratify our wishes.

I send parts of the samples transmitted to me; that those who choose to inspect them, may judge for themselves of their quality.

RICHARD PETERS.

Belmont, Aug. 30th, 1821.

Extracts from Mr. HOLDICH'S Letters—June 6th and 7th, 1821.

"We have had much to do and say about the new process for dressing hemp and flax, which has certainly not met with that encouragement which it deserves—and even now that the marketable stuff prepared for spinning is offered; the linen manufacturers will not give a price for it, even according to its relative value;—that is to say—being ready bleached, this saving ought to be allowed for; and being perfectly discharged of its mucilaginous parts, and stronger withal, there is less waste. This case resembles that of English merino wool, for which the manufacturers never would give the value; either because the quantity offered was no object, or because the owners had no other market. All new things experience similar difficulties. From the time that this new mode took its rise, there has been some controversy between the claimants to its invention; and much altercation in the machinery, and *modus operandi*. It is at length brought to a most simple and effective process; but the machines (Bundy's) are worked only by children and young persons." This he considers only fitted for Bettinger houses and for the improvement of Prison discipline, converting involuntary labours into some certain profit, and "affording to the public, a material of admirable quality."

"As soon as I received your letter, I went over to Bundy's manufactory to pick up such information as might be satisfactory to you. I was sorry to observe very little was doing. This person I believe was the inventor of the effective implement which will immortalize his name; but honour is likely to be the best part of his reward." "He was not at home; but his foreman gave me the enclosed specimens; and told me that the expense of bringing it into the white dressed state, is 6 per cent. including boiling and washing, which is all the bleaching required." "No. 1. is the flax as it comes from the Brake, or Bundy. No. 2. is the same dressed coarsely for boiling. No. 3. is a specimen, boiled and washed, having been put thro' the Bundy again, to loosen the texture, and disengage the Sordes of the husk, technically called the *baste*. No. 4. is the flax perfectly prepared, being dressed again, ready for spinning. It is not to be forgotten, that this process obtains nearly one fourth more of good flax, than the dew rotting mode; and the stuff much stronger. Specimens of *Paper*, I have seen made of it, almost as strong as parchment; and linen of prodigious strength."

"Flax with us is scarcely ever dew rotted; but tied up in sheaves, (and when pulled green and sappy, the sooner it is steeped the better) after it is rippled for the seed, and sunk in water for about 12 or 14 days. They know by handling, when it is enough. It is then taken out of the water in the same order it was put in; and spread on grass land to dry; and receive the rains, to wash out the black stain it gets in *dyking*. When pretty dry, it is again tied in sheaves, and set up; and in fine weather stacked for breaking. That which Bundy uses is tied in sheaves as it is rippled; and saved as dry as it is possible. When broke they spread it in the sun; or in winter fire dry it—

as I have seen your farmers do theirs, which has been dew rotted, to make it work the better. Your flax, when treated with dew only, and broke the common way, is tender and short; besides being half washed into *toc*."

"You should make pits* for steeping, where you can take in or let out the water by the river or creek adjoining."

"It is true, and very important, that flax, with you is spoiled by the dew rotting; which you rightly call a dangerous process. I have seen it lifted from the ground, about Pittsburg, quite spoiled; and your people would do well to consider what I have said before, about steeping. A little practice would instruct them in the necessary knowledge. The time when it is enough, is determined by the feel;—as the stalk becomes a little slippery; and the outer bark (*baste*) is removed by a slight rubbing. It is then taken out, and spread only for a few days." [But it must be spread immediately out of the pith; for if it lies in heaps, it will heat and ferment.]

"In all this there is no danger; and you may know by the Irish linen you import, that it makes fine and beautiful cloth."

MR. COCKE, (Mr. Holdich mentions) does more good than any body, by early implanting industrious habits in the families of his labouring cottagers and inferior tenantry; in place of pecuniary largesses to idlers; which encourage immorality and perpetual penury, under a misapplication of the hallowed name of *Charity*. He "has ordered some of the *Bundies* into operation among the poor children of the village of *Holkham*; who have broken and spun the flax grown in *Holkham Park*. It was spun and wove *unboiled*; making excellent homespun sheeting, that will last a long life. It will wash quite white in a short time."

* The pits or vats must be distant from any dwelling; as the effluvia are not healthful. Some cover with weights, must surmount the flax, whilst steeping; to keep it compact and fermenting. Poles with stones for weights are sufficient. The pits should have clean and sound bottoms; they should be 3 or 4 feet deep, longer than wide, and so situated as to be drained. To avoid packing, in large concerns, too much flax in one pit, the number had better be multiplied.—Yet I have seen a vast quantity steeping in the ditches of reclaimed meadows. This is called *dyking*. But the flax is thus more subject to contract a filthy cover, and dusky colour, requiring longer spreading, for rains to wash off the feculences.

R. P.

FOR THE AMERICAN FARMER.

COCKLE seen growing on the meshes of the WHEAT-EAR.

J. S. SKINNER, Esq.

A farmer of considerable intelligence and observation, has assured me, that he has seen the seed of the Cockle, growing in the meshes of the Wheat-ear. The circumstance excited my surprise in no small degree, as this is contrary to the general laws of vegetation. The cockoo, it is said, dispossesses the hedge-sparrow of its nest, and appropriates it to the rearing of its own young; but, in no other instance than the present, with which I am acquainted, except in the case of the Mistletoe, does one

plant depend on another for sustenance, and the propagation of its kind. In looking over the *Scot's Magazine* for 1778, in page 63, I find an account of the cockle, which corroborates the above. I have copied the article entire, and should be glad to see it in the *American Farmer*.

Your's respectfully,

BENJAMIN COLMAN.

Spotsylvania, Va. 1st Sept. 1821.

EXTRACT.

"There is a troublesome weed very frequent among corn, on light lands, called *cockle*. Of this there are two kinds; the one blows with a pale-red blossom, and has its seeds inclosed in a pod or husk. This plant is very prolific, bearing a great abundance of these pods, each of them containing from twenty to thirty seeds, which are about the size of the turnip-seeds, quite black without side, but the flour as white as that of wheat. The other species of the cockle bears a seed rather smaller than the former, and possesses a very peculiar method of vegetation, being found within the wheat-ear, one side of which has its chests filled with wheat, and the other with this weed, which from hence has obtained, among the husbandmen, the significant appellation of *ear-cockle*. This, though far from being so common as the first mentioned species, I have frequently seen, and is thought, among the farmers, to be occasioned by bad husbandry, whereby the land is exhausted of its nutritious qualities, and so far deprived of its strength, as to be prevented from bringing the wheat to perfection, as this kind of cockle is never found on ground properly managed. As the extraordinary production of this vegetable seems to be wholly different from every other kind of plant, and strongly to militate in favour of the doctrine of *equivocal generation*, now generally exploded, I have sent you this account of it, hoping that some of your ingenious correspondents, who are skilled in natural history, will favour us with their opinion on this subject."

From the Hillsborough Recorder, N. Carolina.

Received by us for re-publication from our respected correspondent, John Scott, esq. with the remark, that the "*West Cane Creek Society*" has been in operation for several years, and contributed very much to improve the Husbandry of that section of the country. We have ourselves frequently noticed and admired the beautiful state in which we have seen the Stocks of fruit trees left after the application of White Wash or Soft Soap. EDIT. FARMER.

EFFECTS OF LIME ON APPLE TREES.

Communicated to the West Cane Creek Agricultural Society, by Benjamin Vestal, an honorary member of Chatham county.

In the spring 1819, I planted one hundred apple trees, of a very indifferent and unthrifty growth; they were knotty, and inclined much to growing of sprouts from the body and roots, inso much that I began to despair of their being worth cultivating. However, in the spring of 1820, I cleared the roots and bodies of sprouts, which were in abundance; then cut off the tops of the trees, and grafted, which of course gave them a greater disposition to sprout; in consequence of which the grafts grew but little

that season, and the sprouts came out from the roots and bodies in abundance. In the fall of 1820, I sprouted and trimmed them clean; then took lime and made a white wash, and there-with lined the trees from the graft down to the root; except a few of them, which I left unlined to prove the experiment. These few remain rough, sprouty and unthrifty; while those that were lined have cast off their rough coats of bark, have but little disposition to growing of sprouts, and are now thrifty and growing trees. This so fully convinces me of the good effect of lime on apple trees, that I recommend it without hesitation.

8th mo. 11th. 1821.

FOR THE AMERICAN FARMER.

At the ludicrous and ill-disguised resentment of Paddy O'Rork, even the object of it may smile. We publish this effusion of wounded feelings very cheerfully, because of its playfulness, and of our high respect for the magnanimous sons of "the Emerald Isle."

"Manure, like the Stiletto of an Irishman, never misses fire."

R. B. BUCKNER.

BALTIMORE, August, 1821.

Sir,

I am extremely sorry to trouble you on this occasion, but I feel my blood a little warmer than usual, on account of what I would call a little bit of a reflection cast on the character of my countrymen; not that I think any harm was intended, for I really believe it was meant as a compliment, but for fear that those who may be as ignorant of the subject, as the writer whom I shall presently name, might get it into their noddles, that the Irish generally use stilettoes!! God preserve us from such ugly, villainous, cowardly, venomous, unmanly, treacherous, sharp-pointed, murderous weapons! I think any man that even carries such an instrument of destruction, should be confined in the penitentiary for a thousand years, and afterwards be hanged without the benefit of clergy.

I suppose, by this time, you wish to know what I want to be at; why then I will tell you: I allude to a publication in your paper of the 12th of last July, on the subject of "Manuring the cultivation of wheat, &c." by Mr. R. B. Buckner; which, by the by, I think a very good publication—wherein he uses a great many appropriate adages; and, amongst the rest, when speaking about manuring, he takes the liberty to say, "Manure, like the stiletto of an Irishman, never misses fire!!" Did ever man, woman, or child, hear of an Irishman using a stiletto before? However, as I am still of opinion, that the gentleman meant to compliment my countrymen, I feel myself under particular obligations to him, and he may be assured, that I have no wish to quarrel with him. But I think he was not sufficiently acquainted with the subject; or that his mind had been wandering over those outlandish countries, where they have so much refined upon the art of killing, as to employ the stiletto, and, by a sad mistake, he imagined it to be in the hand of an Irishman. For, I think Mr. Buckner meant to say, that "an Irishman's shilelah never misses fire." Paddy, to be sure, often carries

his shilelah, but then every one that has the use of his eyes, can see it; and we all know that it is merely intended to administer a little gentle correction, to any one that may happen to spit in his face, or tramp upon his toes with a malicious intention: but he has no disposition to murder! Not so with him who carries a stiletto—he carefully conceals it, with a murderous intent, and a mortal wound is often inflicted, before the victim is apprised of his danger. From what I have set forth, you may perceive, that I would have the public in general, and Mr. Buckner in particular, to know, that it hurts an Irishman's sensibility, to have the use of that most vile machine, called a stiletto, attributed to him, and, that I remain their very obedient servant,

PADDY O'RORK.

Mr. J. S. Skinner.

THE DAIRY EXPERIMENT.

Morning's milk commonly yields some hundredths more cream than the evening's at the same temperature. That milked at noon furnishes the least; it would therefore be of advantage, in making butter and cheese, to employ the morning's milk, and to keep the evening's for domestic use. In milking cows this singular phenomenon is observed, that the milk obtained from one and the same milking differs considerably in quality; that, contrary to what might be expected, the milk first extracted is not the best, but that which is obtained last contains invariably the largest portion of cream. A meal's milk of one cow, milked into five vessels of the same size, and then separately examined, gave results as follow:

No.	1	2	3	4	5
	gave cream of	5	per cent.		
	2	8			
	3	11.5			
	4	13.5			
	5	17.5			

Every regular Dairyman knows, that the last drawn milk, called *strippings*, is by far the richest; but perhaps the gradation of richness, from the first milking to the last, was not before so accurately tried.

Freeman's Journal.

ON DRYING PEACHES.

To the Editor of the American Farmer.

DEAR SIR—I have lived in various parts of the world, and I never in any place saw peaches dried as my neighbours do them here.—I really think that if some of the good house-wives in the lower counties of Maryland, understood the manner they would never pursue the old plan any more. I will relate to you the method which an old Quaker woman generally pursues, which for despatch surpasses every thing in the whole neighbourhood. Almost every night during peach time, she scalds from five to ten bushels—they are put in a large tub, and a bushel or two scalded at a time. Then they are split open—if very large they must be quartered; next morning she sets them out very carefully, though expeditiously, by placing them as close as possible with the rind downward. In good weather they will dry in three days, and be much sweeter, which is the great object in curing them. Here, Mr. Editor, are several good reasons,

for the method of these people—1st. there is a great saving of time, and time you know is money—2nd—the peaches dry in a much shorter time by being scalded, and of course the chance of loss is much less as they are not exposed to the vicissitudes of the weather so long—3d—they retain more flavour, and 4th, a much greater quantity can be cured, than in the usual way. My good old neighbour, above mentioned, cures when peaches are plenty, upwards of ten bushels in the season—and she can get all her necessities of life with the proceeds, and this without even interfering with the other domestic concerns. Should any of the down be left on the peaches, it can be easily gotten off, by rubbing them in warm water, before they are used. Now as your gentlemen Farmers, are progressing so rapidly in the art of Agriculture, I think it behoves all wives to keep pace with their husbands—And sir, if you think the above, worthy a place in your valuable paper, I will at some leisure time give you a short essay on soap making.

Very truly, yours,

HARRIET HOMESPUN.

Loudoun, September 12th, 1821.

John S. Skinner, Esq.

P. S. I think there could be an improvement made on my neighbour's plan of scalding, by dipping a basket of peaches in a pot of boiling water, as the Eastern shore-men do oysters—they should be kept in from one to three minutes, according to the ripeness of the fruit. H. H.

It will always give the Editor pleasure to hear from Mrs. Homespun—but this she knows very well.

THE FARMER.

BALTIMORE, FRIDAY, SEPT. 21, 1821.

The Editor acknowledges with much pleasure, the receipt of a communication from the Hon. J. Pickens, on "The felling of trees for timber"—but all arrangements had been previously made with the printer for the next number of the Farmer. The very striking remarks and facts mentioned recently to the Editor by another judicious and distinguished farmer of Massachusetts—all go to show the great importance of the subject, and the necessity which exists for giving it a more thorough, patient and practical examination, than it has hitherto undergone.

PRICES CURRENT.

Flour from the wagons, \$5 50—Whiskey from doz 27 cts, exclusive of bbl—Wheat, white, \$1 10 to 1 15—Red, do, \$1 05 a \$1 10—Corn \$3 a 51—Oats, 25—Rye, 40—Hay, per ton \$12 a \$14—Straw do, \$8—Live Cattle, \$3 a \$5—Codfish, per quintal, wholesale, \$3, retail 75 a \$4—N. E. Beans per bushel \$1 12 1/2—Peas, 75 cts—Plaster in stone \$5 per ton—do, ground, \$1 5 3/4 per barrel, 33 cts, per bushel, \$8 per ton—America White Lead, \$12 50—Ground do, 13 a 14—Linsed Oil, 75 cts—Feathers, 40 a 45 cts—Shad, new, \$6—Herrings, \$2 a \$2 25, declining—Fine Salt, 56 cts per bushel—Ground Alum do 55 a 60—St Ubes 50—Cadiz, 50 a 55—Turk's Island, 75—Beef, prime ps 8 a 10 cts—Hams, 10 a 12 cts—Middlings, 15 cts—Butter, 25 a 37 1/2 cts—Peas, 50 cts per bushel—Eggs, 12 1/2 cts per doz—Cheese, 8 a 10 cts per pound—Tar \$2—Turpentine, soft, 2—Hard, 1 30 to 1 60—Pitch 2 a 2 25—Rosin, common, \$1 37 1/2 a 1 50—Varnish, 25 cts—Spirits Turpentine, 35 cts per gal. Maryland Tobacco—sales have been made from \$9 a 6—good Tobaccos are in demand at an advanced price, \$1 50 to \$2 per cwt. No sales of Virginia.

PUBLISHED BY JOHN S. SKINNER.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL. III.

BALTIMORE, FRIDAY, SEPTEMBER 28, 1821.

NUM. 27.

AGRICULTURE.

TO THE EDITOR OF THE AMERICAN FARMER.

The immense importance of durable timber, for farming as well as naval purposes, gives an interest to every judicious, or even plausible speculation on the subject. The communication from a person of Commodore Porter's intelligence, will of course attract attention: especially when viewed in connexion with his official station, which peculiarly demands the best attainable knowledge of the matter. Believing the opinion he has given, which is, and probably has been for ages, that generally received, to be erroneous; and thinking it possible that I may throw some light on the subject, I submit to the consideration of your readers the following observations on

THE FELLING OF TREES FOR TIMBER.

In the 22nd number, volume III, of the American Farmer, is a letter from D. Porter, (Commodore Porter) on "The best time to fell Timber with a view to its durability"; in answer to one from the Editor, requesting a communication on the subject. The Commodore, "availing himself" (as he says) of the knowledge and experience of others, in support of his opinion," states this to be, that "the most proper season for felling timber, with a view to its durability, is, in the winter, when the sap has ceased to circulate." This corresponds with the opinion I have heard generally expressed, ever since I noticed observations on the subject; and the precise time in the winter is fixed, by tradition, to "the old of the moon in February."

Many years (perhaps half a century) have elapsed, since I have been inclined to doubt whether the animal and vegetable kingdoms were under the government of the moon. The Commodore thinks its "influence nearly if not quite as powerful as [that of] the Sun." He asks, "why that body [the moon] whose attractions can raise the tides, and influence all animal creation, should not have the power to put the sap of vegetables into circulation, assisted as it is by capillary attraction?"—As heat is essential to give motion to the sap in plants, and the heat of the sun is adequate to that effect, it is not necessary to seek for any other cause; still less to resort to one merely conjectural. No means yet tried have discovered any heat in the rays of light from the moon.

If any effects on vegetation were ascribable to the moon's attraction, yet in an entire revolution of its different distances are not so considerable, as to produce very different effects. Besides combining its different periods, it is as near the earth in its decrease, as in its increase; and its power of attraction must be the same in both cases. The sowing of seeds, therefore, and their vegetation, and the growth of the plants proceeding from them cannot, (as the Commodore seems to suppose) be influenced by the phases or appearances of the moon.—The notion of the moon's "influence on all animal creation" if not a novelty, I believe to be altogether visionary. Anciently, indeed, mad people were supposed to be affected or influenced by the moon; and thence were called lunatics; but that opinion seems now to be exploded. I am indeed satisfied (contrary to the general belief) that *changes in the weather* have no dependence on the moon; but happen indifferently at all periods of its increase and decrease. It has not heat to raise watery vapours from the earth, or to suspend them in the air; and under the same aspect of the moon, the weather is fair at one place and foul in another.

No one can doubt that "dryness is favourable and moisture unfavourable to the durability of timber;"

and in winter the sap of trees is probably inspissated to a considerable degree; but no living tree is then "devoid of sap."—The important question, therefore, in relation to the felling of timber trees, is, I am inclined to think, not simply *when trees have the smallest quantity of sap*; but at *what season the sap they contain will most easily escape, or be expelled*. The facts I am going to state may show this to be in the spring; when the sap is thinnest and flowing in the greatest abundance.

In the year 1800, divested of public employment, and about to commence husbandman, I made a visit to the late Joseph Cooper, of New-Jersey, one of the most intelligent farmers I ever knew, to converse with him on the subjects of his vocation. Among other things, he spoke of *timber*; and stated the following facts.—His farm lying on the Delaware river, nearly opposite to Philadelphia, was exposed to the ravages of the British army while occupying that city. Pressed for fuel, his fences first fell a prey to their necessities. In the month of May, 1778, they cut down a quantity of his white oak trees: but circumstances requiring their sudden evacuation of the city, his fallen timber was saved. These trees he split into posts and rails. The ensuing winter, in the *old of the moon in February*, he felled an additional quantity of his white oaks, and split them also into posts and rails, to carry on his fencing. It is now said he, two and twenty years since the fences made of the May-felled timber were put up, and they are yet sound; whereas those made of the trees felled in February, were rotting in about twelve years. He then pronounced confidently, that *the best time for felling timber trees, for durability, was when their sap was rigorously flowing*. He said, also, that white oak and hickory trees felled at that season, would not be attacked by the worms, producing what is called "powder post". And added, that hoop poles of oak and hickory ought, for this reason, to be cut at the same season.

In the same year, accident threw in my way the late Oliver Evans' book on the construction of mills; to which was subjoined a treatise of a Mr. Elliott, a mill-wright, on the same subject. Turning over some of the leaves of this treatise, I lighted on the passage in which the author directed *hickory timber*, intended for the cogs of wheels, to be cut *when the sap was running, that they might not become powder post*.—In the following winter (1801) being in Boston, and conversing with a friend from the country on subjects of husbandry, I repeated Mr. Cooper's observations, as above stated. This friend then mentioned a farmer, the well-pole (or sweep) of whose well, happened to break at a very busy time: that to supply its place, he cut down the first small tree that came to hand; and this was a white birch. The sap then running freely, he stripped off the bark, and put up his pole; and it lasted seventeen years. Had he put it up with the bark on, it would probably have rotted in a year; the closeness of the birch bark preventing the escape of the sap. A close coat of paint, laid on unseasoned wood, operates like the close birch bark, by confining the sap and hastening its decay.

More than fifty years ago, seeing a quantity of logs, with the bark on, piled up by a chair maker's shop, I asked him why he did not split them, that they might the sooner get seasoned. He answered, that so long as the bark remained on the logs, the sap remained in them, and they were more easy to be dressed and turned. Unless timber trees be cut when the sap is running, the bark cannot be stripped off; though with considerable labour it may be removed by the axe and drawing knife; but less perfectly.

The late Mr. Bordley (who was vice-president of the Philadelphia Society of Agriculture, from its for-

mation in 1785, until his death) once told me, that when riding in the vicinity of Philadelphia, he met a master ship-builder, who had been viewing some trees for ship timber. Mr. Bordley mentioned to him the greater value of ships built with the timber of trees allowed to remain standing a length of time after their bark had been stripped off. The shipwright said he was fully sensible of it; the ships would last so much longer. Why then, asked Mr. Bordley, do you not adopt that practice? Because, said the shipwright, such timber becomes very hard, and costs much more labour to work it.—I have heard new settlers dispute, which was the best way of clearing woodlands; whether by girdling (chopping the bark all round the trees, to stop the circulation of the sap, when they gradually die) and letting the trees stand; and at once seeding the land for a crop; or by cutting all down at first, and burning. The advocates of the latter mode, said, that by girdling, and letting the trees stand, they became dry, and so hard as greatly to increase the labour of afterwards cutting them down.

"Dr. Plott [who wrote in the seventeenth century] says, it is found by long experience, that the trunks or bodies of trees, when barked in the spring, and left standing naked all the summer, exposed to the sun and wind, are so dried and hardened, that the sappy part in a manner becomes as firm and durable as the heart itself. This is confirmed by M. Buffon, who in 1738, presented to the Royal Academy of Sciences at Paris, a memoir, entitled "An easy method of increasing the solidity, strength and duration of timber;" for which purpose, he observes, "nothing more is necessary than to strip the tree entirely of its bark, during the season of the rising of the sap, and to leave it to dry before it be cut down."

But why should timber trees felled in May, (or when the sap is freely running) as in the case stated by Joseph Cooper; or barked and left standing until dry, according to Buffon; be more durable than timber felled, according to the prevailing and popular notion, in the *Old of the Moon in February*? For an answer I offer the following conjecture.—The thinner and more fluid any body is, the sooner and more perfectly, I presume, it will evaporate. The sap of trees is doubtless more inspissated, or of thicker consistence in winter than in the spring when it is apparently thin and watery. In the latter state it will find its way, and escape, through the pores of the wood, with vastly greater ease and expedition than when, as in winter, it is much more inspissated. Molasses condensed by the winter's cold runs very slowly through tubes of a large size. In summer, the same molasses swelling to a larger volume, and becoming very thin, will pass through very small tubes, and, I believe, thro' the pores of some sorts of wood. The same substance (molasses) exposed, in a small quantity, to the hot sun of summer, would soon discharge its more fluid parts, and at length leave as I suppose, a solid substance behind: but if much diluted with water, would not the whole substance be nearly if not quite carried off by evaporation?—The same reasoning may apply to trees left standing, after being divested of their bark in the spring.

It appears by some English books, that their usual time of felling oaks is in the month of April, when the sap is running, and they can strip off the bark for tanning. But the Commodore states, "that in all their contracts for timber for naval purposes, the influence of the moon on the sap is more guarded against than any other;" and he adds, what seems very extraordinary, that "more attention is paid to the time of

* See the British Encyclopedia, article Tree; also Rees's Encyclopedia, article Timber.

the moon when timber should be cut, than to the season of the year:" for (as before remarked) seeing the moon is at the same distances from the earth during its decrease as its increase, its power of attraction might be the same in both cases; and consequently, all the different effects which tradition has ascribed to the waning and the waxing moon must be visionary.

The maturity of timber is quite another thing; and probably of more importance than the time of felling it. There is a point of ripeness when trees acquire their greatest solidity, strength and durable quality, for timber. The late Dr. James Anderson, says—"It is now well known that the best fir timber which comes from Iliza, and other places on the Baltic, is the produce of the same tree that is commonly cultivated here [in Scotland] under the name of the *Scotch fir*; but having *grown more slowly* in those countries than the planted tree, do here, and having been allowed to attain a much greater age, that wood is beyond comparison closer, and four times at least more durable in any kind of work, than the young raw deals [boards and planks] which are made of wood the usual growth of this country."

Dr. Anderson, in early life a practical farmer, a man of letters, and an ingenious and philosophical observer of nature, appears, nevertheless, to be entirely mistaken in his ideas of the cause of the hardness and strength of wood, and in ascribing to the same cause its durability.—Mentioning the rings in trees which mark their growth, he says—"as one of these rings is added to the circumference of the tree each year of its growth, and forms the whole increment of the tree for that year, it follows, that the less that increment is, or in other words, the slower the trees grow, the less will be the breadth [thickness] of these rings, and of course, the closer the grain of the wood, and the harder also it will be." Just the reverse of this is the fact. Every farmer and carpenter, in the United States, knows that the thicker the annual ring, or, in the common language, the larger the grain, the harder and stronger is the wood. Hence the butt-ends of white oak are preferred for the spokes of wheels, and of hickory for axe-helves. Every wood-chopper also knows how much easier it is to fell and cut up the trees growing with small grains in a close forest, than trees of the same kinds which have grown singly and faster in open grounds. And every man who has used husbundry tools, a fork or rake for instance, whose handles are of ash, knows how much harder, stronger, and heavier because more solid, they are when made of timber with large grains, which had grown fast in good soils, or at such distances from tree to tree as not to rob one another of their food,—than when of small grained, slow growing timber. But the timber of trees, pasture oaks for instance, standing singly and at distances from others, and which are of rapid growth, and consequently with large annual rings, or grains, though twice as tough and strong, is found, I have long understood, less durable than the timber of oaks of slower growth. The reason is obvious. The oaks in forests do not attain the sizes fitting them for ship-timber, until they have reached the age of maturity or ripeness. In this state they may probably continue stationary for some years; but if left standing many years after they are of full age, the toughness and strength of the wood are greatly impaired. But pasture, or other fast growing oaks, attaining, in much fewer years, sizes suitable for ship-building and other uses, are sometimes cut down before they come of age, before they are mature, or perfected by time; and hence the earlier decay of such timber. The fact stated by Dr. Anderson, in comparing the "raw" Scotch and the mature Baltic firs, exemplifies this doctrine. And in correspondence with it, I will mention a maxim which probably had been handed down from generation to generation, and was repeated to me by my father when I was a boy, upwards of sixty years ago, which I perfectly remember, and have repeated to others: "My father used to say (so the maxim was introduced to me) young wood for fire, old wood for timber."

In reference to the memoir of M. Buffon, before

mentioned, the authors of the British Encyclopedia, say that "By many experiments, particularly described in that essay, it appears, that the tree should not be felled till the third year after it has been stripped of the bark; that it is then perfectly dry, and the sap [sap wood] become almost as strong as the rest of the timber, and stronger than the heart of any other oak tree which has not been so stripped; and the whole of the timber stronger, heavier, & harder; from which he thinks it fair to conclude, that it is also more durable." And they add, that "The navy board, in answer to the inquiries of the commissioners of the land revenue, in May, 1789, informed them that they had then standing some trees stripped of their bark two years before, in order to try the experiment of building one half of a sloop of war with that timber, and the other half with timber felled and stripped in the common way."—"We are sorry that we are not able to inform our readers of the result of the experiment."

Commodore Porter and his colleagues of the American Navy-board, may have it in their power to make, and carry into complete effect the same experiment. So my farmers possessed of timber trees, to render the experiments more fair and conclusive, trees as nearly as possible of the same size, and growing in the same soil, should be selected. Growing in the vicinity of each other, the equality of size will be an indication of an equality of age,—a point, probably, of material importance.

These experiments I hope will be made extensively by farmers, in preparing their timber for fencing, and for carts and other implements much exposed (often unnecessarily) to all changes of the weather. For however plausible theories may appear, careful experiments alone can determine their correctness.—Experiments by farmers may very easily be made, in their fences; by having some panels (or lengths of rails) of timber prepared in one way & then a like number of timber prepared in the other. At the same time too, they can try an experiment to ascertain whether, in post and rail fence, the rails, with their heart edge downwards, will last longer (as the commodore supposes) than with those edges upwards, in the mode universally practised. He suggests that the concentric rings (the annual growths) in trees split into rails, and these placed in fences with their edges upwards, form so many cups or hollows, into which the rains and dews falling on the rails enter; and having no other way to escape, soak through the rings to the sap-wood and bark on the under side, and thereby hasten the rotting of the heart wood above.—I much doubt the correctness of this theory. Rails placed with their heart edges upwards, have very steep roofs, by which water speedily runs off. Their heart-wood soon seasons, and its surfaces become close, without visible cracks. But place the broad, bark side upwards, the falling water will rest longer upon it, and enter the sap-wood, often an inch or more in thickness, and as soon as this shall become rotten, it will be a sponge to receive and hold water, to soak into and gradually rot the heart wood below. Such is my view of this subject: but let experiments be made.—For the purposes of the navy, or other ship-building, experiments may also be easily made; though not so satisfactorily as by constructing a vessel with the two sorts of timber as designed by the English Navy Board. An equal number of pieces of timber felled in the two different ways, may be dressed to the same sizes, and equally exposed to the weather in all its changes; and to expedite the result, they may be often immersed in water, so as to be almost daily wet and dry.

Hickory (in New England generally called Walnut) grows in many parts of our country. It is a tough and hard wood; but when exposed to the weather soon decays; yet may, it seems, be advantageously used in salt waters infested with worms. Eighteen or twenty years ago, passing by a saw mill, placed on tide water, I observed some hickory planks. I asked

† If heavier when of the same bulk with common timber, its fibres must lie closer together, be therefore less pervious to moisture, and consequently more durable.

the sawyer for what use they were intended. He answered, for the sluice-ways, or other water works, of side mills; because not liable, like oak, to be eaten by the worms. Passing a few days ago by some tide mills on the same streams, I mentioned the fact just stated to one of the proprietors. They continue to use hickory for the same purpose, because, said he, "the worms don't touch it."—Any person inclined to make trials of this wood for such purposes, may previously ascertain the fact, by sinking two pieces, one of oak and the other of hickory, in waters where worms are known to abound; and after a few months taking them up again.

TIMOTHY PICKERING

Salem, September 10, 1821.

[From the Saratoga Sentinel.]

ADDRESS,

On the necessity of EDUCATION, and advantages of subsequent study, to Farmers, delivered before the Agricultural Society, of the county of Saratoga, at the annual Cattle Show and Fair, on the 12th October, 1820, by ESEK COWEN, esq.

MR. PRESIDENT, and

Gentlemen of the Society,

I make no doubt of obtaining implicit belief, when I assert the extreme reluctance with which I yielded to the friendly partiality of the Executive Committee, at whose request I am about to address you. Most of my practical knowledge in Agriculture is confined within the essays of very early life, while I pursued the cultivation of a farm under the direction of another. Whatever attention I may have since bestowed upon improved theories, or in directing the operations of others, I pretend to nothing beyond a mere novice in this noble science. The singleness of attention, I have thought it my duty to bestow on my immediate profession, must be an apology for the lack of more advanced improvement in that of the farmer; and will excuse my neglect to urge those topics, to which custom would seem to point our attention on occasions like the present.

But however deficient I may be in what constitutes the practical or theoretical agriculturist, I have not been without my share of observation, on the influence he carries into moral and political life. It is with pride and pleasure, I propose dwelling for a moment on his character, in this point of view, and submitting a few considerations, which I conceive friendly to its permanence and improvement.

I forbear repeating the unmeaning language of common parlance, that the mere act of cultivating the soil is a virtue; and not only so, but of that commanding rank which throws every other virtue into the shade. I agree that this is the rugged foundation, by which the social fabric is ultimately sustained; that combined with the useful arts to which it gives tone and employment, it furnishes the means of human sustenance. But still, so far from being a virtue in itself, it is the offspring of a necessity that will forever impel the great body of society to those pursuits which furnish the most simple and ready medium of subsistence: That necessity, which taught commerce to Carthage; and war to the little republics of Athens and Rome. In its simple state then it is to be cherished and improved merely as an instrument of livelihood, furnishing the food which sustains, and the raiment which covers us. But when we depart from this point to consider its moral influence upon our happiness, its tendency to form the virtuous citizen, the republican and patriot, we rise from approbation to enthusiasm; and invoke for its encouragement and protection the energies of the national arm. We are no longer content to see it progressing by the dim light of that necessity in which it originated, degraded in rank, and languishing under the torpid hand of the Polish slave or the Russian Peasant; but we call to its aid the lamp of science; we open to its professor the region of the mind, and hail his advances in the walks of intellectual greatness.

It should not then be our object to form the mere farmer, however exquisite his skill in swelling his

crops, or multiplying his flocks and herds. It is his simultaneous duty to superadd to the cultivation of his farm, that of his mind; and to extend the same care to the mind of his family. For this purpose it should be his object, in the first place, to acquire himself and impart to his offspring at least a common education. This is a good foundation for mental improvement, but nothing more. It should be regarded in every man's hands, merely as the instrument of rearing and establishing that intellectual superstructure, which is to give him character, consequence, capacity and happiness in the various stations he may be called to sustain in society.

There is no greater mistake, than in imagining that because a scholar has mastered his spelling, reading, writing, grammar and arithmetic, he is then entitled to dismiss his books, take up his farming tools, and bend a single eye to his agricultural avocations. Such a course is inexhaustible. What would you say of the son, for whom your diligence and affection had obtained a degree at the university who should dismiss all mental discipline on receiving his diploma, and in the bustle of business or pleasure, so far from improving upon the stores of ancient learning which you had unlocked to his view, should even forget the characters in his Greek Alphabet?—Would he not be more richly entitled to the epithet of idler and truant, than the farmer who suffers his crops to be overrun with weeds, or destroyed for lack of fences? Yet his diploma is but the threshold of improvement. His collegiate attainments are but the rudiments of the scholar, the means of forming him to usefulness and eminence. A wide and unbounded field of knowledge lies before him, inviting his culture, of which he as yet possesses no more than the utensils for improvement. It is a reality which cannot be too highly appreciated, that a common education falls but little short of a liberal one in these important particulars, and that, consequently, a neglect to improve it leads to nearly the same sacrifices. All experience proves that literary excellence is, in an eminent degree, attainable by the mere English scholar. History, Geography, moral and indeed most branches of natural Philosophy, Logic, Mathematics, Metaphysics, Belles Lettres, &c. and a general knowledge of our constitution and laws, sufficient to form the legislator and statesman, are within the reach of every man of common education. I say within his reach, if he will devote to their attainment that portion of time which almost every one has at command. It is a great error for the farmer to gaze on these matters at an awful distance, as if they belonged in strict monopoly to the professed scholar, the bar, or other walks called learned by way of distinction. I presume those farmers, who are really wealthy, will not pretend to any such excuse, but will submit peacefully to the charge of a too close application to their pecuniary affairs. But the farmer in middling circumstances, will tell us that he wants both leisure and means to improve his mind by much reading and study; that his attention is necessarily confined to his business; that he lacks money to purchase him a library; that he has passed the time of life when he expects filling any station where his learning will come much in play; and as to his children, they must pursue their own inclinations; if they are not naturally students he cannot make them so; that the necessary attention to study, though it improves the man, takes from their labour, and impairs his estate.—I deny all these excuses. They are contrary to the fact.

I agree that absolute poverty has a bare excuse—Nothing more. But I take the farmer in the middle walks of American Republican life, who with his brethren constitute the great body of our population. I will take him with a family, no matter how numerous, if bred as they should be to habits of strict economy and industry.—He has leisure to pass without employment in business, many of his long winter evenings, and much of the day time during the same period. The laws of his country command him positively to quit his labour one seventh part of the year, and devote it to the improvement of his mind and morals; to which Sunday schools have been already added in

many parts of the country, as a useful employment for a portion of that time. The most rigid clergyman of the most rigid sect, will not pronounce it unlawful during that time, for him to unbend from his immediate theological exercises, by the pursuit of such general studies, as must strengthen his mind, and prepare him for the more useful and acceptable discharge of the Christian duties. He has the means of purchasing a small collection of books for purposes of the most immediate utility, to serve as a manual for himself and family and to fill up those little interstices of leisure continually occurring, which the poet calls "Catching the transient hour, and improving each moment as it flies." While his more enlarged researches are cheaply and liberally supplied by the well selected public library of the neighbourhood.

With what wonderful improvement this species of literary industry is attended; there are probably many among us that can bear testimony. But it has some few striking illustrations such as have been furnished me in the character of two much respected friends, one of whom is now no more.

The first was a farmer in tolerable circumstances, whose diligent personal labour was necessary in providing for the support of a growing family. He cultivated his farm during the proper season; and in winter employed himself at a neighbouring lime kiln, so that every part of the year witnessed his productive industry.—By his education he might have been qualified to teach a common school, and I don't know that he ever aspired to travel beyond the sphere of English literature.—Visit him in his field, at his barn, his lime kiln, where he was uniformly employed at the proper hours, and you would rarely find him alone. His Milton, his Johnson, his Hume, his Shakespeare, or some other equally well chosen British Classic, was uniformly in his company, which he had perused and re-perused, till his acquaintance with these great men had become critically complete. From an industrious course of reading and observation, under all his disadvantages, his mind had arisen to that of the scholar, and I venture to aver, there are few, very few men of finished classical education who can reach his style of composition, either in poetry or prose, or his enlarged views, whether philosophical, moral or political. He continues I understand to prosper in the improvement of his property, notwithstanding the adverse circumstance of his title's failing to the little farm upon which he at first located himself.

I shall not insist on my second instance as an example for imitation, in all his points of character. I do believe he failed in some of those maxims of human prudence, which inculcate a diligent provision for our household, but I deny that it was owing to his literary turn.

He commenced life without property and an increasing family depending on his hands for support with a middling English education. But literally too poor to purchase the candles for his study. Under this formidable pressure of pecuniary embarrassment and distress, he acquired a handsome standing in the literary world, from borrowed books; perused by torch light, in a little hut, more miserable than that of Socrates, as it is handed down to us in the comedy of *The Clouds*. His general reading was extensive and well chosen. His taste was correct, and his style of writing respectable. He acquired a tolerable knowledge of the Latin and French; his knowledge of Mineralogy and Botany was by no means contemptible; and the History, Geography and Geology of his country have been improved by his efforts. His pecuniary circumstances were in a degree bettered by success in turning his literary acquisition to account; but owing to a native heedlessness as to the means of subsistence, he moved through life as if under "the influence of a malignant star, waging an eternal war with poverty."

If the farmer is advanced in life, he most probably has children who will mould their future lives by his example; and he already fills a station which gives ample play for all the knowledge he can place in store. He is the member of a great and rising Re-

public, whose constitution and general policy invite his scrutiny.—In the selection of whose functionaries he is annually called to assist;—upon whose conduct he sits in judgement. In the exercise of so important a duty, what speed can he make, without the aid of that cool monitor, a well instructed understanding? The storms of faction are let loose to overwhelm him. Envy, passion, interest and malice sweep their mighty rage, and put in requisition every engine to disfigure, to inflame, to corrupt and to persecute. It is amidst this awful conflict that reason is to hold her throne, if she holds it at all, or (which is the most easy and therefore the most frequent course) she must abdicate her seat, and become the humble tho' indignant disciple of some pitiful, despicable demagogue.

To form the character of the mere elector, he should study his national and state constitution with its ablest commentators. He should examine the history of nations, their rise, their progress, their decay, and final extinction. He should understand the resources, the geography, and the religious and moral habits of his own country. He should investigate the spirit of her laws, and search out her commercial relations.—Until he does so, he cannot appreciate the conduct of his rulers. Difficulties, disasters, and inevitable misfortunes are confounded with faults and crimes; or even the most upright, beneficial and prosperous efforts are metamorphosed into state villany, by those who are interested to hoodwink the master in his search to determine the merit of the servant. His ignorance and credulity are thus made the more sport of the artful and designing knave, who he gratifies perhaps at the expense of an able faithful delegate.

Again—By a judicious course of reading and reflection he dispenses the darkness and terror which will ever attend superstition and ignorance. He forms a more correct estimate of the duties, flowing from the relation to his family, to society and to his God!—Becomes better contented with the world, smooths the asperities and removes the peevishness and puerilities of age. He of all others is best qualified to attain and enjoy that enviable state of human happiness so elegantly described by the Poet of the seasons;

"Rural Quiet, friendship, books,
"Ease, and alternate labour, useful life,
"Progressive virtue, and approving heaven."

I cannot better conclude this head than by adopting the opinion of an admired writer in our own country on the happy effects of perusing the Spectator of Addison and Steele.

"A style so sweet and simple and yet so ornamented! A temper so benevolent, so cheerful, so exhilarating! A body of knowledge and of original thought so immense, so various, so strikingly just, so universally useful! What person of any age, sex, temper, calling or pursuit, can possibly converse with the Spectator without being conscious of immediate improvement.

To the spleen he is as perpetual and never failing an antidote as he is to ignorance and immorality. No matter for the disposition of mind in which you take him up: you catch as you go along the happy tone of spirits, which prevails throughout the work; you smile at the wit, laugh at the drollery, feel your mind enlightened, your heart opened, softened and refined: when you lay him down, you are sure to be in a better humour both with yourself and every body else. I have never mentioned the subject to a reader of the Spectator, who did not readily admit this to be the invariable process; and in such a world of misfortunes, of cares and sorrows and guilt as this is, what a prize would this collection be, if it were rightly estimated.

Were I the sovereign of a nation which spoke the English language, and wished my subjects cheerful, virtuous and enlightened, I would furnish every poor person in my dominions (and see that the rich furnished themselves, with a copy of the Spectator: and ordain that the parents or children should read four or five numbers aloud every night in the year. For

one of the peculiar perfections of the work is, that while it contains such a mass of ancient and modern learning, so much of profound wisdom, and of beautiful composition, yet there is scarcely a number throughout the eight volumes, which is not level to the meanest capacity. Another perfection is, that the Spectator will never become tiresome to any one whose taste and whose heart remain uncorrupted."

Gentlemen, another agricultural season is past. I congratulate you on the sufficiency, though not on the profusion of its productions. "The giver of every good and perfect gift," has never been unmindful either of our temporal or spiritual happiness. The health of your bodies has undoubtedly been preserved and improved by the cheerful exercises of the field. The vegetable world is about going to sleep for the winter, but the mind, the immortal soul will never sleep. Schools will probably be opened in your respective neighbourhoods, to cheapen and improve which, the kind hand of your government is also extended, as well as to patronize your farming efforts. Your children are to form the future men of this country. Attend diligently to the cultivation of their minds. It is this which fits them for their station in life, whatever it may be. Remember with Doctor Watts, "that they are to be measured by their soul," and that "the mind is the standard of the man."

GRASSES and GRASS LANDS.—First Report thereon, made by a Committee of the Agricultural Society of Pendleton, South Carolina.

AUGUST, 1818.

There is, perhaps, no branch of husbandry, of much more importance to the farmer, than that on which it has become our duty to report, and we believe none is so much neglected in the southern states; and if any require proof of this, we would invite their attention to our farm stock, and should they demand other evidence, we would remind them of the rise which beef and pork has taken within a few years.

Four years back, the highest price that could be obtained for pork was five dollars, and the beef that the country afforded was readily obtained at three cents, and three and a half per pound. From that time these articles have been gradually rising, and at this time, you pay six and a half cents for beef, and for two winters past the current price of pork has been from seven to eight cents.

This wretched state of things, owes its existence to two causes. The rapid decline of grasses in the forest, and inadequate crops arising from exhausted lands badly cultivated. How to restore fertility to our soil, and even to make it richer than ever it was by nature, we have been amply instructed by the able report presented by the committee on manures, at our last meeting and it now remains for us to show, (if we can) how the want of grasses for our stock may be supplied. In this attempt we will simply lay before you such facts as we have been enabled to collect on the subject.

Meadows, we are strongly inclined to think, are well calculated to ameliorate our condition; and almost every farmer who has a stream three feet wide, running through his farm, is in possession of more or less meadow land, which, while suffered to remain in a state of nature, answers no other purpose than to entrap our poor cattle in the spring of the year.

Experience has taught all who have tried it, that to have a good meadow, it is only necessary to grub out the under growth, and cut down

and remove as many of the larger trees as will be necessary to admit the action of the sun. In some instances it is necessary to cut a small ditch round the edge of the meadow, so as to cut off springs; but in most cases, they become sufficiently dry after a few months exposure to the sun.

Ten or twelve years ago, a gentleman residing on the waters of Twenty-three Mile Creek, cleared a meadow of four acres at the head of a small branch, a great part of which was so high as to produce only what we call the broom or sedge grass; and on the low and wet parts, grew a coarse grass, very much resembling what we call the fox tail; but after this meadow had been mowed two or three years, these grasses became much finer, and yielded better and more abundant hay. For two or three years, the product of this meadow was not considerable, as it had been thickly covered with young maple, the sprouts of which were very troublesome for that time; but as soon as they were entirely subdued, so as to give the grass full possession of the soil, the quantity of hay was so much increased as to become an object of great importance, inasmuch that the annual product for several years past, has been estimated at one hundred dollars, and the last summer seventeen large wagon loads of good hay was taken from it.

About ten years since, a gentleman residing on the Eighteen Mile Creek, cleared about one acre of meadow, which is in the winter and spring occasionally overflowed, and six years ago he cleared about two acres more, one of which he sowed with timothy, in October, putting one quart of seed on the acre. This meadow has been found to improve annually. The present year the acre of timothy produced four large wagon loads of hay, which made a stack eighteen feet in diameter at the base, and for six feet up this size was preserved, from thence it was gradually drawn in and terminated at a point fifteen feet from the ground. From the dimensions and solidity of this stack, we might safely estimate the wagon loads to average from eight to ten hundred weight. This meadow was viewed by one of the committee some days before it was mowed, and it was then so dry, that through the greater part of it the ground was very much cracked. Notwithstanding it must, from this appearance, have suffered much for the want of moisture, the timothy was generally four feet high, and close around the roots of large standing sweet gums which had not been deadened, it was as tall and looked as well as in any other part.

From the two acres of natural meadow, was taken eleven wagon loads of hay, which, made two stacks, not much smaller than the one just described, and eighteen feet high; from the state that this meadow was in, all the spring and summer, we must infer that if it had been properly watered the quantity of hay must have been greatly augmented; and in support of this inference, we will copy an article from an English author on Agriculture. Speaking of watering meadows, he says: "This is a part of husbandry strangely neglected in England, but of unbounded importance. I experienced it, in my Suffolk farm, and yet stronger in my present Hertfordshire one, where any person that

may call on me may see the vast difference between a meadow in the parts watered and unwatered. I had this year, (1769) as much hay from off one watered acre, as all the four unwatered ones in the same field."

The meadow on the Eighteen Mile Creek which produced the fifteen wagon loads of hay from three acres, is such land as our water courses abound with; it is a stiff soil, with very fine texture, one degree lighter in its nature than the common pipe clay. In the summer when the earth is neither parched with drought nor saturated with water, this soil has been profitably cultivated in Indian corn and oats; but in either of those seasons it is very difficult to tend and produces but little. The foundation of this soil is a very stiff blue clay. The growth is maple, ash, sweet gum, white oak, some poplar and iron wood, and here and there on the high parts, hickory and dogwood. This land properly drained, and thrown up into high ridges in the winter, with a two or four horse plough, and an application of such manures as are adapted to cold stiff soils, might no doubt be profitably cultivated in corn and other grains: but it appears by nature to have been designed for meadows, and should never be appropriated to other use but where there is a surplus.

Among the grasses which grow spontaneously in these meadows, we notice a large coarse grass very well known by the name of the red grass—this is generally found in smaller quantities than the other kinds, which may be owing to the others being earlier and thereby getting possession of the soil. This grass delights in water; but in very springy situations, that are always cold and so it will not grow. Where it can be watered at pleasure and kept wet by any other means than the constant oozing of cold springs, it yields much more abundantly than any other grass we are acquainted with; and when it has been frequently watered, the growth is so thick and tall as to require two acres to cure what grew on one; it makes a coarse but very sweet hay, of which cattle, sheep, and horses are very fond. It is the opinion of the most experienced and skilful farmers that this grass is decidedly the most valuable we have either for mowing or grazing.

We might have noticed other meadows, as there are several others of value in our district, but we are not so well acquainted with their character. The two brought to your view afford the most abundant and incontestible evidence, that with a little labour and pains, we may have excellent meadows, not only of natural grasses but of timothy. In short, if these examples are not sufficient to excite others to go and do likewise, we despair of offering any thing that will have that effect. With one more remark we will leave this subject. A meadow once established, is done for life or perhaps for a century.

Of exotics we can give but few examples, as but few experiments have been made with them in our district.

The grass called dog foot or orchard grass, (*Dactylis glomerata*), has been found valuable for grazing, which will appear by the following experiment. One of our committee some years back sowed a small lot with this grass, which came up too thin, the seed being bad;

but notwithstanding this, he pastured it at all seasons of the year with cattle, horses, and sheep for ten or twelve years; he then cultivated the lot in corn, and some bunches of this grass were to be seen in it for some years after it had been thus cultivated. We may therefore presume that this grass, sown a proper thickness, in good strong ground, would be very durable and valuable for grazing.

Lucerne has been found both in England and this country very valuable for soiling. A gentleman of great respectability in our state, sowed a quarter of an acre, on a stiff red clay hill, with it (this was well manured) and in common years he has cut it seven times; but the last summer being unusually seasonable, it was cut nine times and kept six horses.

This is considered in England a valuable grass for soiling, and although said to be an expensive one, is highly recommended by Mr. Young; by a fair calculation he makes it appear that the expense of planting and managing one acre is 4*l.* 9*s.* 2*d.*; in this he includes manuring, ploughing, hoeing, mowing, and hauling home, and in this he has rent, tythes, and rates 1*l.* 10*s.* (which will not be found in the American account.) He then says, keeping five horses from the beginning of May to the end of October, at 2*s.* 6*d.* per head, per week, is 14*l.* 7*s.* 6*d.*, which leaves a clear profit of 9*l.* 14*s.* 6*d.*. It thus appears that with all the expense attending its culture, it is found there to be a very profitable mode of feeding horses; but here it appears to be far more so, because there one acre kept but five horses during the season, here one quarter of an acre kept six horses.

The proper time of sowing is the latter end of March or beginning of April, because like the turnip it is subject to the ravages of the fly, and by early sowing it will attain a sufficient size so as not to be affected by the fly; if broadcast, twenty pounds of seed to the acre; if drilled in rows two feet apart, six pounds will be enough.

The value of lucerne crops are said to be much increased by sowing oats with them, in the proportion of six pecks of oats upon very rich land; two bushels on indifferent soils, and three for poor soils. As soon as the oats are sown and harrowed, the lucerne should be sown and a light harrow passed over it, whether in drill or broadcast.

The land must be rich and kept clear of weeds to have a good crop; it flourishes, by the English account, best on deep rich friable loams though it will thrive in any good dry soil, and in the coldest climate.

Mr. Young says, although this is considered an expensive plant to cultivate, if the value of the food be computed according to the maintenance of cattle per week, it will pay nearly cent per cent.

The *Feather grass* called by some white top, (and which is said to be a dutch grass known among them by the name of *Weissen-kolfer*), has been tried in some parts of this district and in Georgia, and is found to answer well for winter and spring pasture for sheep and calves. This grass has been described by Dr. Anderson in his essays on agriculture as the *Cocksfoot* or *Feather grass*. (*Stipagennata*.) On rich

loams, and in the meadows near the mountains, this grass has produced fine crops of hay; but there the red clover and timothy being thought superior in similar situations, is taking the place of it, though they still think it a valuable grass for their lands of a second quality, which are chiefly pastured. With us it has been found to succeed best as a winter grass. It preserves its verdure in the severest weather, and grows vigorously during every relaxation of frost and very early in spring. If suffered to seed, it appears to die in June after the seed is perfected, but it puts out again in September, affording in its succulent juicy leaf, resembling the leaves of harley more than any other, a rich repast during the fall, winter, and spring months. As we recommend this grass chiefly for pasture, and it grows better than any other we know of except ripple grass or narrow leaved plantain (*plantago tenuifolia*.) on poor stiff soils, it may be worthy of remark that our common crab grass begins to grow, in our climate, just as the feather grass declines, and as soon as the crab-grass dies, the feather grass again succeeds it, and continues to afford good pasturage till the crab grass appears the next year. Thus these two grasses will afford the desirable advantage of good pasturage all the year.

ON THE HESSIAN FLY,

(*CECIDOMYIA DESTRUCTOR*.)

AND PROPER COURSE OF CROPS.

Read before the Agricultural Society of Bucks County.

SHARON, 1st June, 1821.

Sir—I am tracing the history of the Hessian fly (*Cecidomyia destructor*) for the past year, 1820, as laid down in my communication of the first of February last, I omitted that part which relates to its evolution from the straw about the barn, and therefore the present is principally intended to supply that defect, and to offer some observations growing out of it. The insect first appeared in the winged state in the house on the twentieth of February (the weather being then moderately warm,) and continued to be seen occasionally, or whenever the weather was in a suitable state, until the opening of spring; indeed in a room where fire was kept, I saw it on some quite cold days; but the number was so inconsiderable, that no injury need be apprehended. I must then call the attention of the society to the stubble fields as heretofore recommended; for I am now satisfied, that the insect can be so crippled, as to be rendered harmless to our crops; but to insure success, all must adopt the same plan: this indeed is a great difficulty, because the case has been given up as irremediable. It should not, however, discourage us, as difficulties ought always to stimulate to greater action, and the importance of the subject before us, demands our every exertion; besides, I am persuaded that our purpose can be easily accomplished. If such a rotation of crops can be devised, as will admit the ploughing in the stubble at the proper season, and which will yield as great profits as our present

course, independent of the destruction of the fly, surely every one will be willing to try the experiment; inasmuch as it will be risking nothing for a prospect of great gain. My plan is already submitted generally, but it may be well to state it more particularly, and confine it to that part, in which alone my confidence is now placed; that is, plough in the stubble immediately, or soon after harvest; then harrow the ground in the same direction that it was ploughed; which will destroy a large proportion (in the pupa state) and will cause plants to spring up, sufficient to receive the deposit of any flies that may escape the ploughing, or evolved from the straw that was stacked or housed; suffer those plants to grow till near the time of putting in the wheat crop; then plough again, and the work of destruction will be finished; or if the ground is not intended for grass or winter grain, the last ploughing may be done at any time during the fall: for although some of the pupa might change to the fly state, yet, it being the habit of the insect to deposit its progeny on the nearest plants that are suitable, and as there would be ample provision at hand, there would be no necessity for it to remove from the stubble fields. Rye and harley stubbles must also be attended to, and plants growing about stackyards and barracks should not be neglected. The course of crops that I would propose is, first, wheat; second, corn; third, oats and clover. The soil to be broken up for wheat, the first ploughing being shallow, and done in hot weather, a decomposition of the vegetable matter in the soil will immediately commence; and when sufficiently advanced, give a second and deep ploughing, and harrow as occasion may require; just before putting in the crop, give a third and very shallow ploughing; begin sowing the last week in September, so as to finish the first in October, or if it were possible, I would sow the whole on the first day of October; because, prior to that period the insect appears in such quantities, as to do considerable injury during the fall, and is stationed for a second attack in the spring; whereas, afterwards, the number is not sufficient to make any serious impression; but it is not safe to postpone the sowing much beyond that time, as the young plants would be more likely to perish by the winter, than the fly; and the wheat that is in a backward state in the spring, is more subject to attack and less able to resist it. The farmers in this neighbourhood generally agree, that the time here mentioned is the proper time of sowing, and the growing crop fully evinces its truth. The lot I had sowed on the thirtieth of August, is entirely cut off: and some sown by my neighbours about the 20th of September, will scarcely yield a crop worth cutting: such as was sown the last of September and first of October, promises well, and that sown later is much injured, except where it was highly manured. The time of sowing in other places, should be regulated by climate or actual observation. Thus managed, I believe a good crop may be calculated on, even without manure; but it is said by some to favour the increase of garlic; it might be so in the first instance; but taking the whole course into view, I do not think it would have that tendency, and in order

to remove the objection entirely. it would only be necessary to commence the system, by breaking up the ground at a time when the garlic was in a growing state, or by pasturing the earlie in the early part of the season with sheep. I would apply the manure to the corn crop, either by spreading it upon the wheat stubble, and immediately ploughing it under, or putting it on in the spring. The oats crop should be put in as early in the season as practicable, and directly after harrowing sow clover: it has been found, when sown early, to take quite as well as with wheat: let the clover remain one year, then turn it in for a wheat crop, and continue this course on the same ground, until it shall be completely cleaned of all trash: then sow some more permanent kind of grass, and suffer it to rest, in order to plough up that part of the farm which had been under grass. Thus dividing the farm between grass and tillage land, and changing as occasion may require; but when the farm becomes cleared of all noxious weeds and other pests (and perhaps it is the best way to clear it) that part appropriated to grass ought not to be broken up oftener than may be found necessary; as it will take several years to get well set with natural grass; which is much to be preferred to the artificial grasses, especially for pasturage; indeed with top-dressing occasionally, and sometimes scarifying, the ground need scarcely ever be ploughed. That part allotted to grains and clover, might be worked in the manner above-mentioned, any length of time, with improvement to the soil; and under that management, not only the ravages of the Hessian fly will be prevented, but the worm that takes its lodgement in the cavity of the stalk (as stated in my address to the society,) will share the same fate; for the egg that produces it, is deposited about the same time as that of the fly; and farther, our grain crops will probably be exempt from the attacks of most other insects; at any rate I am persuaded, that our corn would not be injured by the cut worm, as its parent deposits its progeny among grass; and the natural green or spear grass, which I propose to be chiefly attended to, would not be much injured; besides, the spider which I presume is the cause of the salivary disease of animals would not be likely to lodge in that species of grass, or rather it would prefer the clover; and by ploughing that crop in, we should destroy it: or if, as some imagine, that the disease is caused by the animal's feeding on a plant called *euphorbia maculata*, which is said to be common on pasture grounds, that plant would soon be rooted out by the natural grass; and in either case we should get rid of the evil.

If then the system which I here propose, shall effect any one of the contemplated objects, the gain to the community will be truly great; and incalculably so, if it should result in the complete realization of the whole. I am not, however, tenacious of my plan or course of cropping; I only offer it for consideration: let others pursue their views, and by giving the result of their experience, we may adopt that which is best. My great or leading object is to destroy or cripple the fly while in the stubble fields, where it is completely exposed and

in our power, and in my opinion the only point when it can be attacked with success; and therefore I call upon every friend of agriculture, who is engaged in the culture of wheat, rye or barley, to unite in it.

Yours, very respectfully,
JAMES WORTH.

JOHN LINTON, ESQ.
Chairman of the Comtee on Entomology.

FOR THE AMERICAN FARMER.

MILLET,

Its fitness for Hay, and its goodness as grain disputed; great caution in making Agricultural experiments, recommended.

BALTIMORE COUNTY, 7th Sept. 1821.

Mr. Skinner—

I have seen several pieces in your paper, passing the highest encomiums on Millet as food for horses and cattle, both as hay and as grain. I am not very credulous, but am willing to try any experiment, that either promises fairly, or has good authority for its foundation.—I am afraid too many of my fellow farmers go by sudden impulses, rather than with a steady persevering and powerful push. The Doctors have a saying that is applicable to the morbid state of the body—"Atonia gignit spasmos," and I think the reverse of this too applicable to my brethren; i. e. that those violent rushes at particular *new articles* of husbandry, beget a subsequent state of supineness.

It is but a short time since your paper appeared almost in drills with Ruta Baga; then again, crowded with Mangel Wurtzel; and now, behold the Beta-altissima, is about being over shadowed with the countess Millet.

I have no inclination to damp the ardor of my fellow farmers. I only wish them to moderate it, and let some of the caloric of their zeal, spend itself in the slower, steadier fires of industry. A luxuriant crop on poor, or badly tilled ground, is the great desideratum of an alchemistic-farmer. There can be no objections to *new articles*; but I assure you, Sir, we have some very fine old ones; such as corn and timothy, for instance.—Ah! say you, but these require both labour and a high cultivation, to make any thing out of them.—Well, Sir, when you can shew me any thing good, and successively so, without depending upon these indispensable—why then, I will say that you have opened a mine that will enrich the world.—Now, for my experience, it is very small; but what I give shall be a fair sample of the whole. I was told, about five years ago, that Millet was a very good article to feed chickens, and might be raised on poor ground, even where corn would not grow. And as I, like most others, happened to have some ground exactly of that description, I procured seed from Montgomery county, Md.; but according to custom, I did not follow the directions exactly: for, I sowed it in *good ground*; where it produced very well, and brought so many birds* that I had to

* There were some birds that drew my attention very much—the hen was of a rusty brown, like a sedge lark, and the same size; the cock was decorated with the finest shining blue, equal to some parts of the Peacock.

take the first opportunity to cut it down, lest they should hear it all away.—My chickens, old and young, were served with it daily, but in vain; they would not touch it; and I had to mix it with dough, to get it off; this soon tired me, and I laid it aside. The next spring, two bushels of the heads were turned out of doors in a barrel, to perish; and to my astonishment, the chickens regularly came and stole it away, till it was all gone; but as I was not pleased with that mode of disposing of any of my articles, I fell out with the seed altogether.

The stems were about four feet high, and as thick as a quill, and very hard; *neither cow nor horse would eat them*; nor should I have been willing to let my horse eat such stiff food. I would have been very willing to exchange the stems (load for load) for sedge or rag-weed (ambrosia). So far goes my experience on this famous Panicum Italicum. But I afterwards took the pains to enquire of a French gardener, what use was made of it in his country?—and the only answer he could give, was "*Bone for soup*." Now is it not a little astonishing that the Europeans in the hot countries, where hay is so much wanting, have not had the sagacity to make good hay from Millet stems? Hay that would be preferable to timothy?

I should not have thought of Millet again for some time; but, being in your city, a gentleman presented me with some seeds, brought from the Mediterranean. Among these I recognised two as Millet, and as I thought they might be of a better species than those I formerly tried, I sowed a few feet of fine ground with the two kinds. One of them grew to five or six feet high with spikes 10 or 12 inches long, and stems as thick as a lady's little finger, and therefore, was more unfit for hay, than the old parcel, though I believe it was at most, a variety of the Panicum Italicum. The other kind, which had smaller seed, came up with a very hairy sheath, was as thick as the other, and four feet high; but was panicle, and the numerous spreading branches, crowded with seed, bearing branchlets—no doubt it was the Pana. Milliaccum.—This kind might have grown higher, but being near a walk, was often pressed down when small; and as the ground has not been spaded but once since, their seed have produced a still more degenerate race, not unlike what is common in our rich weedy gardens; and from its hairy sheath and smaller seeds, I consider it still more unlikely to become a valuable feeding article. My utmost thoughts as to the value of the Panicum Italicum, was to make pea or bean sticks of it, by sowing it very thinly among them; as I had formerly seen what is called the Crowder-peas, growing very handsomely round these stems. I have repeatedly in conversation, with you Sir, given it as my decided opinion, that to make hay, and grain too from Mil-

† The Helcus or Broom-corn family, as well as the Panics, naturally divide themselves into large and small, or grain bearers and simple grasses with insignificant seeds. Having cultivated a few stems of the Helcus tricolor, viz: that with upright panicle and black seed covers, and that with pendent panicles and brown covers, I cannot discern in what manner they can be cultivated or used to be equal to corn and its fodder.

let, was incorporated, if there were no other kinds than those I allude to, and to this opinion I still adhere; but if there are other species and varieties cultivated among us, I can say nothing of them; or, if inferior soil could, by reducing the size of the stem, as well as its hardness, make good, soft and nourishing hay of those which I have seen, I should be glad of it, but I know of no other article on which it has such an effect. And if I and my neighbor, Dr. Smith, are correct, then it certainly requires great caution on the part of others, either as to seed or soil, lest they be disappointed. But I shall not be surprised to find this HOBBY laid aside, after a year or two. There remains a circumstance to be noticed, connected with the finest I sowed, viz.: That it produced for two years, the most unconquerable hardness on the soil, which was a stiff loam, and sowed about the 1st of May.

S. V. S.

FOR THE AMERICAN FARMER.

EDUCATION.

TO BE APPROPRIATED FOR THE PURPOSES OF EDUCATION IN EACH OF THE UNITED STATES?

Cambridge, Ohio, June 14th, 1821.

MR. SKINNER,

Sir—I have this day noticed in the American Farmer of the 8th instant, that the Legislature of Maryland, during their last session have, as it would appear to me, with some want of candour, attempted to shew that the people of the state of Ohio, are educating their children at the expense of the state of Maryland. I for one, could I believe the doctrine, would be ready and willing to refund to the Union, all the benefits we have received, or are likely to receive, from the appropriation of public lands within this state, for the promotion of learning.

But, Sir, I believe the Legislature of Maryland have taken a very partial view of this business. I contend that the state of Ohio have not only repaid to the General Government, every cent which they have laid out for those lands; but that she has paid it with a handsome profit. And, certainly that is not given away, which is well paid for. Upon examining the calculation of the Maryland Legislature, it appears that somewhere about the 30th part of the lands in the state of Ohio, have been appropriated for the use of schools, and other seminaries of learning; and now, let us see who have paid for those lands.

A township of land contains 23,040 acres; and, I suppose, did not cost the UNION more than 10 cents per acre; but we will say it costs them 20 cents per acre, at which price it amounts to \$4608. The 30th part of a township said to have been given away, is 768 acres. Deduct this from the township, and 22,272 acres remain which at \$1 66 cents per acre (nearly the price we have paid for our lands when they were paid for in cash) amount to \$36,971, making a clear profit to the Union of \$32,363, on a single township of land. Now although the Legislature of Maryland has said that the 30th part of the

land in this state has been given to us, I still trust that the enlightened citizens of that state, will upon a candid re-consideration of the subject, say that we have fully paid for them; particularly when they recollect that it was a condition of the sale, and a prominent item in the contract, that if we would pay so much for the balance, we were to receive the 30th part for the use of schools. Now where is the difference between saying that we should have a township of land for \$32,363 52 cents, or that if we would pay this sum for 29-30ths of a township that we should have the balance also, for the use of schools? Will any man say, that a merchant who sells a coat pattern, with a condition, that he will give silk to make it, does not sell his silk also, as well as the cloth? Those who are accustomed to sell, either land or cloth, know that he does.

All the appropriations of lands in the state of Ohio, and the 5 per cent. for making roads, were (as it is called) given by Congress, with precisely the same view as a merchant treats his customers to a glass of wine, or a tavern keeper a traveller to his bitters in the morning; that is to say as an inducement for people to purchase their lands; besides, it increased the value of the balance, and when a man purchased a quarter section of land, he knew he bought and paid for a share in the school lot. It was therefore no gift.

Indeed there needs but slight examination of this matter, to convince any man, that we have received nothing but what we have paid for; and that, too, without the consolation of believing that the price would be expended among us, in proportion to what we pay into the National coffers: But this was not to be expected whilst, as the Legislature of Maryland, says 2-3ds of the Union are against us—However, the day is probably not far distant when the tables will be turned. * * * * *

And whilst I have my pen in hand, I will cut out a little work for the next Legislature of Maryland, as I presume business is as dull with them as it is with us in Ohio. It appears by their calculation, that about the 30th of the lands in Ohio have been appropriated to state purposes, BY THE STATE PAYING VERY WELL FOR THEM; but what has become of the 30th? I presume it will not be denied that they have gone into the treasury of the union. The question then that I would propose for consideration at Annapolis, is simply this—whether the state of Maryland would not, by paying into the national treasury 30ths of the proceeds of the lands sold by that state, and appropriated to her own use, appear something more like wishing to do as she would be done by, than when she keeps the whole of that, and modestly asks for 298,055 acres more?

There are many other exceptions, that might be taken, to the pretensions of the state of Maryland; but, knowing as I do, that there are many men in Ohio, who have more time and talents to appropriate to the subject than I

(†) Here some remarks are indulged which are too sectional for this journal. Edit. A. Farmer.

have: I shall stop here, after commending it to their notice. Yours, &c.

A N OHIOAN.

FOR THE AMERICAN FARMER.

The Agricultural Poor.

North Carolina, 7th June, 1821.

DEAR SIR—I will avail myself of this opportunity of addressing you upon another subject—and of suggesting to you a plan, which if put into operation, could, in my opinion, add not only to the credit of our Agricultural Societies, but would certainly tend greatly to the relief of numbers of unfortunate beings that, in consequence of the pressure of the times, are unable to earn a support. The tiller of the ground, conspicuously depends upon the bounty of his Creator. The supplies he receives, appear to be more directly the gift of that God, "who sends the early and the latter rain"—he witnesses the display of Almighty wisdom and beneficence in the product of his fields—he deposits the grain in the earth, to vegetate—it gradually arrives at maturity, and is restored to him twenty, thirty, fifty fold. Surely then, he is emphatically called upon to apply a portion of what is thus bestowed upon him, to the use of those of his fellow creatures, who do not possess the blessings which he enjoys.—We find other classes of the community have their charitable societies, and why should not the Farmers have theirs? I would propose, that in every agricultural society, a certain portion of the funds should be appropriated to the use of the poor and destitute in the county, where the society is established—that each individual belonging to a society, should give a small portion of the product of his farm or plantation—the proceeds of which, to be deposited in the hands of the Treasurer of the Society, to constitute a fund for charitable purposes. In this way vast numbers may be relieved, and the inconsiderable expense scarcely be felt by those who give.

I have hastily thrown together a few ideas on this topic, in the hope that some one may take up the subject, and do it justice.

Very respectfully, &c.

G. W. B. B.

Wool, &c.

The demand for this article must continue to increase. The domestic supply is not equal to the present wants of the manufacturers; and more factories will undoubtedly be established in the country every year—as, under present encouragements, the business is profitable, although prosecuted with too little capital, and by those who have yet much to learn.

Farmers will therefore, and certainly, be well rewarded for the care, which they may hereafter pay to flocks of Sheep. To all those who live remote from the Atlantic cities, this description of stock will be particularly profitable. Much of the produce of their lands will not, now, bear the expense of transporting it to the sea board. But Wool, besides finding a

market in most of these states, may also be sent to Europe, with advantage to the grower and shipper.

And, as an important step towards the general introduction of the better kinds of Sheep in every part of this vast country, having reference both to the carcase and fleece of the animal, I beg leave to suggest, that it might be found very useful to solicit annual authenticated reports from the several states of this union, setting forth the average weight of wool per head, of different breeds together with the average weight and disposition to fat in the shorn animals. This might be readily accomplished, through the instrumentality of county and state Agricultural Societies—and it would soon cause inferior flocks to give place to better animals.

My own flock, of 51 Sheep, averaged, at the last annual shear, nearly 8 lbs. each, of wool in the dirt; but I do not mention this even as a part of an individual report, for I called no one to witness the operation, nor did I think of weighing my sheep at that time: next year however, I will do both in form, and send a sample of the wool, with the report, for publication, in the hope, that many persons will do so likewise; and thus pave the way to an important national object—the introduction of better sheep into every part of this country.

RICHARD K. MEADE.

WHITE POST-OFFICE,
Frederick County, Virginia.

Interesting Extracts—From the Editor's correspondence.

FLOWING OF THE SAP.

CHAMBERSBURG, 19th Sept. 1821.

"You may inform your correspondent S. S. Griffin, M. D. that his experiment, "whether we may not entirely dispense with the use of hand hoes in the cultivation of Indian Corn, from the planting of the grain to the harvesting of the crop," may be made with great confidence of success. Among our best farmers I have not seen a hoe in a corn-field after planting, for seven years and more—all is done with the plough.

Who among your correspondents has ever experimented upon the theory of the sap of trees? Does it ascend and descend—or recede into the heart, and revert to the surface with the heat? A walnut log, put up in building a barn, last spring put out a shoot which continued vigorous until August; the log was 15 feet up.

A locust post, hewn so as to take all the bark off, except in a small cavity about 2 inches diameter, put out a shoot from that cavity 15 inches long."

DRESSING OF FLAX.

In the essay on "Flax Husbandry," by S. W. Pomeroy, vol. iii. page 124, of the "American Farmer," it is stated, that a respectable gentleman from Dutchess County, New-York, informed him, "that mills or machines, impelled by water, have been erected there, that break and completely dress the flax for a toll of one tenth."

It would be most desirable to a number of farmers in this part of the country to know, if this information made to Mr. Pomeroy is correct, and through the medium of your paper, to become acquainted with the nature of the mills or machines, their cost, size, construction, and the place where one, in successful operation, has been erected—and the name of the maker to whom application may be made. The mills are said to have been of Scottish invention. Any information you can give us, will be gratifying to
YOUR SUBSCRIBER.

* Messrs. Harrison & Torrey, very spirited introducers of foreign machinery from abroad, and manufacturers of newly invented implements, recently made a machine for an extensive grower of flax, near New-York, to dress it without rotting or retting—but we understood, that they sold it at a considerable loss, and it was very doubtful whether it would answer in any satisfactory degree. Ed. Am. Far.

SEED CORN.

Liberty, Bedford Co. Va., 13th Sept. 1821.

MR. SKINNER—Believing that in the cultivation of Indian corn, as in most other things the crop might be improved and increased by selecting the most forward and prolific for seed: I commenced in the fall of 1815, and selected my seed corn from those stalks only which had two good ears on them; and these of the most forward corn. I cut the stalks with the ears still hanging on them, and without husking or shucking them, and stored them away in November, in some garret or high dry place, secure from rats, &c. until planting season in the spring. When I shuck it and shell off a few grains at the small end only, of each ear—after I had selected my seed corn in this way, two years in succession, I invited an elderly and particular friend, who lives near me, to walk in my field one evening, in the third year, and see my Indian corn. He presently remarked, that he never saw so many stalks bearing two ears each, in his life; and inquired the cause—I informed him—and we conversed some time on the subject of its reasonableness, &c.—This gentleman returned home, and that fall selected his seed in the same way, and the next fall informed me thereof—and on my inquiries for the result, he informed me that on selecting his seed, the preceding fall, he had to go over nearly his whole crop, before he could find a sufficient number of stalks with two ears each; and he the succeeding fall, found no difficulty in selecting a sufficiency on an acre or two—and that he had no more doubt of the great benefit resulting to farmers, from this easy task of selecting the seed corn in this way, than he had that rich land was more productive, than poor. I have regularly continued this mode of selecting seed corn, since 1815, and have heard many persons, who have viewed my corn crops, say they never saw so many stalks bearing each two ears or more, in any other crop as in mine. Let it not be said my land is superior to other people's, or is rich low ground. I have not ten acres of low ground in my tract, there being only some small bracon, running through the same; and the land I cultivate, is not fertile; but from clover and pas-

ter, and the regular five shift system, it is improving rapidly: although some tracts of it are poor and broken, and have been from twenty to forty years in cultivation. And, Mr. Skinner, I now venture an opinion, that there is no crop in this large and fertile county, of the same size with mine, affording more stalks of corn, with two good ears on each, than I can shew on mine, bearing three ears each—from which latter only, I shall select my seed this fall.

Most respectfully, &c. your obt. servant.
WM. COOK.

A Remedy for hoven or swollen Cattle.

A writer in the "Columbian" gives directions for stabbing cattle that have been hoven or swollen by eating clover or other green and succulent food. It has been said that any alkaline solution will answer every purpose proposed by that dangerous process. The following is easily procured, and we are told has been found efficacious.

Make what is called by some a whitley, by putting about a pint of good house ashes into about two quarts of water; stir it a little, let it settle and turn off the clear water. This when poured down the throat of the creature diseased, will speedily effect a cure. One junk quart bottle full is commonly found sufficient for an ox or a cow.—In some instances a second is necessary.—A less quantity will answer for a sheep.—Small lumps of tar mixed with Indian meal, forced down the creature's throat, will likewise effect a cure.

THE FARMER.

BALTIMORE, FRIDAY, SEPT. 23, 1821.

The Editor will be much indebted to any subscriber or friend, for the loan of the *London Farmer's Journal* of the 9th of July last—that number contains the 1st day's proceedings of the Holkham sheep shearing—the previous and subsequent numbers have been regularly received in exchange for this paper. The number requested, if loaned to the Editor, shall be safely returned.

PRICES CURRENT.

Flour from the wagons, \$6—Whiskey from do. 27 cts. exclusive of bbl.—Wheat, white, \$1 25 to 1 27—Red, do. \$1 18 a \$1 20—Corn, white, 52 a 53—Yellow, do. 55 cents—Oats, 28 a 32 cts—Rye, 50 cts.—Hay, pr ton \$12 a \$14—Straw do. \$8—Live Cattle, \$3 a 6 50—Codfish, per quintal, wholesale, \$3, retail 3 50 a \$4—N. E. Beans pr bushel \$1 12 1/2—do. Peas, 75 cts—Plaster in stone \$6 pr ton—do, ground, \$1 37 1/2 pr barrel, 33 cts. per bushel, \$8 per ton—America White Lead, \$12 50—Ground do. 13 a 14—Lunseed Oil, 75 cents—Feathers, 40 a 45 cents—Shad, new, \$6—Herrings, \$2 a \$2 25, declining—Fine Salt, 55 cents per bushel—Ground Alum do. 35 a 60—St. Ubes, 6—Cadiz, 50 a 55—Turk's Island, 75—Beef, prime ps. 8 a 10 cts—Hams, 10 a 12 cts—Middlings, 12 cts—Butter, 25 a 37 1/2 cents—Eggs, 12 1/2 cts. per dozen—Cheese, 8 a 10 cts per pound.

NORTH-CAROLINA STAPLES.—Tar \$1 75, cargo price, plenty—Turpentine, soft, \$1 75 a 1 87 do Hard, \$1 25 a 1 37—spirits Turpentine, 30 cents—Varnish, nominally, 25 cents, no sales—Rosin, \$1 25, nominally, no demand—Pitch scarce, \$2 25.

MARYLAND TOBACCO—actual sales—2 bbls. first, from Calvert county, \$11 75.—4 do. do. \$8 first, \$4 50 seconds. Charles county Tobacco, sales from 50 to \$12 for first—Seconds, \$2 a \$4 50—Wagon Tobacco, fine yellow none—Good red, from \$11 to 12.

PUBLISHED BY JOHN S. SKINNER.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL. III.

BALTIMORE, FRIDAY, OCTOBER 5, 1821.

NUM. 28.

AGRICULTURAL SOCIETIES.

We are rejoiced to see that a spirit of inquiry, is every where leading to the establishment of Agricultural Societies; and that these, by judicious measures, are inspiring our Farmers and Planters universally with a zealous but generous desire to excel each other: we say generous desire, because of their commendable willingness to publish, for the good of all, the means which lead to individual success. Let those engaged in other pursuits of life, mark and imitate this noble example of disinterestedness. They too might associate and offer rewards to the pre-eminent skillful members of their own calling; and, for the advantage of society, let their proceedings likewise be published. We offer these suggestions, most particularly and respectfully, to those who are engaged in domestic manufactures. The manufacture of the finer linens and cottons, and the process of dyeing, especially woollen cloths, with beautifully perfect or last colours, are among the many objects, which deserve honorary and substantial encouragement at their hands. It is not enough that they uplift their hands, and call upon Hercules for assistance; they should strive to help themselves, to resist, excite and aid each member of their vocation. To the advancement of objects so desirable to all, we would cheerfully devote a portion of our paper; nor can we conclude these remarks, without observing, that we regret, that whilst on the side of agriculturists, constant efforts have been made of late years, to improve their practice by the offer of rewards, and the publication of the means or road to success; we have not heard of any correspondent measures having been adopted by the manufacturers.

Agriculturists not only associate to reward each other's meritorious exertions and useful discoveries, but they have even gone beyond their own proper pursuit, and offered rewards for *Manufactures*.—But manufacturers have associated to ask for *Governmental aid*, and have given honorary rewards to the able and distinguished advocates of their *Petitions*! It is time that their attention was directed to the *materiality* of their business, and high time that their bounty should be dispensed to those amongst them, whose genius or enterprise, may teach them to succeed by contrivances, at least as skillful as those used in Europe and Asia. We recently paid an hasty but very agreeable visit, to the celebrated Waltham Factory, near Boston—which has proclaimed its independence of governmental protection—and, however that acknowledged independence, and the superiority of its operations, may be ascribed to the advantages of large capital, it is not to be doubted that *much more* is to be attributed to the *perfection of its machinery*. To us it was matter of especial regret, that the American Arkwright, who superintends and controuls it, was absent at the moment, as it would have been gratifying to see him develop the whole complication of an extensive machinery—moving with a precision, accuracy and delicate adaptation in all its parts, as if animated and propelled by an inherent principle of intelligence.—We were informed that an English manufacturer had given a very large sum of money, for permission to pass through this superb establishment, with leave to take drawings of its parts—and retired, saying that a previous knowledge of what he had seen would have saved him ten times the sum. The Engineer was described to us as combining, like Mr. Jefferson, the simple and unaffected manners of a child, with the genius of the Philosopher—yet we did not learn that any of his valuable improvements—one of which was

said, to have cost several days and nights of abstracted room study—had ever obtained for him any honorary notice or distinction whatever.

Ed. Am. Farm.

NEW YORK COUNTY

AGRICULTURAL FAIR,

For the exhibition, reward, and sale of ANIMALS, VEGETABLES, FRUIT-TREES, and DOMESTIC MANUFACTURES; raised or made within the state. This Show and Fair will be held on the 23d and 24th of October coming, by the New-York County Agricultural Society, at Mount Vernon, four miles from the city, where the following premiums, in various pieces of silver plate, will be distributed, under their arrangements, to the successful competitors

No. 1. Animals.

1. For the best stud horse - - - \$30
2. For the best brood mare, taking into view blood, form, color, and action - - - 50
3. For the next best, do. do. - - - 30
4. A discretionary premium to be awarded for the best horse, mare, or colt, that may be found on the ground for exhibition - - - 20
5. For the best bull, not less than one year old, to be kept at least one year within the state, after receiving a premium - - - 30
6. For the next best, do. do. - - - 20
7. For the best cow, not less than three years old - - - 20
8. For the next best, do. do. - - - 15
9. For the best pair of oxen, fitted for slaughter, regard being had to the mode and expense of fattening, to be accompanied by a satisfactory certificate of the same, - - - 40
10. For the next best, do. with the like conditions, - - - 50
11. For the next best, do. do. do. with the like conditions, - - - 20
12. For the next best, do. do. do. with the like conditions, - - - 15

N. B. The oxen must have been owned by the exhibitors, as early as the 1st day of July, instant.

13. For the best merino ram, taking into view size and fleece, - - - 10
14. For the next best, do. do. - - - 5
15. For the best merino ewes, six in number, regard being had to size and fleece, - - - 15
16. For the next best, do. do. - - - 10
17. For the best ram of an improved English or native breed, - - - 5
18. For the best ewes, six in number, of an improved English or native breed, - - - 10
19. For the best wethers, six in number, fitted for slaughter, - - - 10
20. For the best boar, not less than seven months old, to be kept within the state at least six months after receiving a premium, - - - 5
21. For the best sow and pigs, - - - 5

N. B. All animals intended for exhibition must be owned within, and by inhabitants of this state, and must be entered upon the books of the society, at least ten days prior to the first day of the cattle show; to which end, certificates of blood, keeping, &c. &c. must be lodged with the secretary of the society, at their public room, in the New-York institution,

or at Mount Vernon. No premium will be awarded without the above precaution; and to be entitled to a premium, in any case, the subject must be above mediocrity.

No. 2. Vegetables and Fruit Trees.

For vegetables raised within the county of New-York, viz.—

- | | |
|--|------|
| For one half acre of carrots, - - - | \$20 |
| For one acre mangle wurtzel, - - - | 15 |
| For one quarter acre parsnips - - - | 15 |
| For one quarter acre blood beets, - - - | 10 |
| For one quarter acre white onions, - - - | 10 |
| For one quarter acre Savoy cabbage, - - - | 10 |
| For one quarter acre ruta бага, - - - | 10 |
| For one quarter acre summer cauliflower, - - - | 10 |
| For one quarter acre celery, - - - | 10 |
| For one quarter acre Cape Broccoli, - - - | 10 |

A premium of 20 dollars will be given to the person who shall raise, from one acre, the greatest quantity of summer or winter food, for milk cows, giving a description of the soil, kind and quality of the manure used, also the manner and expense of cultivation.

It is expressly understood by the Society, that no premium will be awarded, unless the vegetables are raised for the supply of the city markets, (and by a member of the society) with the exception of ruta бага and carrots: these being an object as much for feeding of stock as for table use.

All candidates for premiums must accompany the application with a written statement of the time of sowing, planting the seeds, manure, and cultivation.

For the best exhibition of fruit trees, set out within the county, since April 7, 1819.

- | | |
|--|------|
| Apple trees, not less than forty, - - - | \$10 |
| Peach trees, not less than twenty, - - - | 10 |
| Plum trees, not less than ten, - - - | 5 |
| Cherry trees, not less than ten, - - - | 5 |

N. B. Persons intending to apply for these premiums must give immediate notice, in writing, to the examining committee, that an examination may be had at different times during the season. The committee consist of Israel Dean, Thomas R. Smith, John P. Groshen.

No. 3. Domestic Manufactures—made within the state.

1. For the best piece of superfine broad cloth, not less than 20 yards in length, nor less than 7-4 wide, - - - \$15
2. For the next best, do. do. - - - 10
3. For the best piece of superfine cassimere, not less than twenty yards, 3-4 wide, - - - 15
4. For the next best, do. do. - - - 10
5. For the best piece of black silk florentine, not less than 15 yards, made of American silk, - - - 10
6. For the best specimen of cotton sheeting, not less than two pieces, each 25 yards in length, and forty inches wide, - - - 10
7. For the best piece of linen shirting, not less than 25 yards, - - - 10
8. For the best six pair of boots, pegged or nailed, - - - 5
9. For the best six pair of men's shoes, made of calf skin and sewed, - - - 5

10. For the best six pair of wove worsted stockings, - - - - - 9
11. For the best specimen of wove cotton stockings, - - - - - 5
- For the best specimen of woollen knit stockings, - - - - - 2½
- For the best do. worsted do. do. - - - - - 2½
14. For the best of flannel, not less than twenty yards in length, 7-8 wide, - - - - - 10
15. For the best yard wide carpeting, not less than 25 yards in length, - - - - - 20
16. For the best 3-4 yard wide stair carpeting, twenty-five yards in length, - - - - - 10
17. For the best pair of woollen blankets, not less than two and a half yards in length, and 8-4 wide, - - - - - 10
18. For the best specimens of linen diaper, 5-8 wide, not less than twenty yards, - - - - - 10
19. For the best do. yard wide diaper for table linen, not less than twenty yards, - - - - - 10
20. For the best specimen of sewing silk, not less than three pounds, - - - - - 5
21. For the best do. of linen thread, not less than four pounds, - - - - - 5
22. For the best side of seal leather, - - - - - 5
23. For the best specimen of calf skin leather, not less than six skins, - - - - - 5

Note.—The premiums for animals and domestic manufactures are open to competition for the state at large. The society have reserved a portion of their funds for the awarding of discretionary premiums, for inventions in agriculture or manufactures, and for whatever may be exhibited worthy of patronage; but in no case will a premium be granted where the subject is not above mediocrity. No premium will be awarded for animals that have heretofore received prizes at the exhibition of this society.

No. IV. For the best milk dairy kept in the county, not less than twelve cows, \$15.—Applicants for this premium must give immediate notice to the secretary. They must also, on the 15th October next, furnish to him a full statement in writing of the number of cows, their breeds so far as can be ascertained, the mode of feeding, the quantity of milk obtained, and the quality as tested at different times during the season, when the food is changed.

By order of the Board of Managers,

CADWALLADER D. COLDEN, Pres.
RICHARD N. HARRISON, Rec. Sec'y.
New-York, July 4, 1821.

CONSTITUTION OF THE FARMER'S SOCIETY OF BARNWELL DISTRICT, S. C.

Art. 1. The name of this Society, shall be the Farmer's Society of Barnwell District.

Art. 2. Every member shall pay at the annual meeting in July, the sum of three dollars to the Treasurer.

Art. 3. The officers shall consist of a President, two Vice Presidents, Treasurer and Secretary.

Art. 4. It shall be the duty of the President, to preside at all meetings of the Society—to him, all motions are to be addressed, and he is to decide all Resolves of the same. In the absence of this officer, and of the Vice Presidents, the Society shall elect some member to officiate in their stead; and the presiding officers shall have a vote upon all the concerns of the Society: the president shall superintend the concerns of the Society—shall cause the by-laws to be carried into effect, and shall sign all certificates, granted by

the same. In the absence, death, or resignation of the President, the senior Vice President shall attend to all his duties.

Art. 5. The Treasurer shall keep a correct account of all receipts, and expenses of the Society, and shall not pay any money out of the funds of the same, but by an order, signed by the President, or officer, presiding in his place. He shall also keep a correct list of the members of the Society; and exhibit annually in October, a statement of the funds.

Art. 6. The Secretary shall read to the Society, all communications to the same, and make such communications as they direct: He shall preserve in a Book, such communications and letters, as they may either direct to be copied, or taken care of. The books of the Treasurer and Secretary, shall be open to the inspection of any member, at every meeting of the Society.

Art. 7. By-laws, and all other resolves of the Society, shall be noted in the transactions of each meeting, by the Secretary—and for the passage of all these, a majority of the members present, shall be requisite for their enactment.

Art. 8. No salary shall be allowed to any officer or committee for discharging their duties—neither shall any contributions, in any form, be exacted by the Society, from its members, excepting as is herein provided.

Art. 9. The Society shall meet at the Village of Barnwell, upon the fourth Mondays of July, October, and January, of each year. But the President can, at any time, call the Society together, by giving due notice at the Court House, and other public places in the District.

Art. 10. The promotion of the Agriculture of the District being a primary object with the Society, a committee of seven shall be appointed annually in July, to report, at the fall meeting, a list of such premiums, and under such regulations, as they may deem advisable for the Society to direct for the next year. At every fall meeting, the Society shall determine upon the same—it shall also be the duty of the committee, to make such communications, as they may deem calculated to advance the interests of the Society in any respect.

Art. 11. For the admission of members into this Society, two thirds of the members present must concur—and they may be proposed either by a member, or by letter, from the person desirous of joining the Society: honorary members may be elected at any stated meeting of the Society, and no pecuniary contributions are expected from them.

Art. 12. Every member (not including the honorary members) shall subscribe his name to these articles; and any member, wishing to withdraw from the society, must give notice to the Treasurer—and pay all arrears due.

Art. 13. At all meetings of the Society, any member can introduce a friend, to be present at the same—and members of all other agricultural associations, shall have the privilege of joining in any discussion, upon subjects connected with agriculture, which may take place during the meeting.

Art. 14. None but members of the Society shall be considered as candidates for any premiums; and any member may be expelled, at any stated meeting, upon the concurrence of two thirds of the members present—the vote, upon this question, and also for the admission of all members, must be by ballot.

Art. 15. A quorum, to transact the business of the Society, must consist of seven members, including the officers of the Society—and upon the adoption of the Constitution, the society shall proceed to the election of all the officers, and the standing committee, to serve until the annual meeting in July; when an election shall take place, for these situations for the ensuing year.

Art. 16. No change shall be made, in any of these articles of association; but, at a regular meeting, and all such proposed alterations, must be submitted at one meeting; and shall not be acted upon until the next regular meeting of the Society. In all cases, two thirds of the members present, shall concur in such alterations.

Proceedings of the Farmers Society of Barnwell District, South Carolina.

At a meeting of the subscribers for forming the Farmer's Society at Barnwell Court House, on the 6th of August, 1821,

The Committee, who had been previously appointed to draw up a set of rules, for the government of the society, reported a set of rules which were unanimously adopted. After which the following gentlemen were elected officers, to serve for the ensuing year:

Dr John S Bellinger, President,
Rev. Darling Peeples, 1st Vice-President,
Rev. H. D. Duncan, 2d Vice-President,
Angus Patterson, esq. Treasurer—and
Jennings O'Bannon, Secretary.

Resolved, That the following named gentlemen form the committee under the 10th article of the Constitution: Dr. John S. Bellinger, William R. Bull, esq. Col. F. J. Hay, George Odom, esq. Willis J. Duncan, esq. Wm. Provost, esq. and Major M. Felder.

Resolved, That twelve dollars be appropriated for the purchase of books, for the use of the Secretary and Treasurer, and the first and second volumes of the *American Farmer*.

Resolved, That a copy of the Constitution of the Society, and the proceedings of this day, be transmitted to the Editor of the *American Farmer* for publication, through the President.

Resolved, That this meeting adjourn to the fourth Monday in October next.

JENNINGS O'BANNON, Sec'y,
August 6th, 1821.

☞ In this number we commence copying a series of papers, headed—“*SKETCHES ON PRACTICAL AGRICULTURE*,” by JONATHAN TYSON. We have been edified by the perusal of them—and we believe they will be as gratifying to our readers. They are taken from a weekly journal, published in Philadelphia, by LUTWELL & HENRY, in octavo form, at \$5 per year, entitled “*THE SATURDAY MAGAZINE*,” being a continuation of the *National R. R. Courier*. It offers a suitable occasion to recommend that journal to the notice of the public. It will be found to contain a great variety of interesting matter. The selections and original pieces, under the heads, *Science and Agriculture*, are manifestly well chosen and of useful character. The lighter articles are entertaining and of excellent moral tendency. We are the more bound to offer our humble testimony in behalf of the *Saturday Magazine*, because we have often drawn upon it for the benefit of our readers, and shall probably repeat our requisitions quite as often as Editors usually think consistent with “*fair dealing*”—and whilst on this subject we take the opportunity to offer the contents of the Farmer, to the free use of Editors of other works being perfectly willing that they should have recourse to it, whenever they may think that any part of its contents may be made subservient to the amusement, or instruction of their patrons. Our original design and only hope, was to be *useful*—our aspirations are yet to the same end.

Of the number of the Magazine, from which we copy the first of Mr. Tyson's communication, the following is the table of

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AGRICULTURE.

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Sketches on Practical Agriculture.

BY JO-HUA TYSON.

Abington, February 22, 1821.

MR. JAMES WORTH,

My Dear Sir,—In compliance with your request, I will endeavour to give you a general outline of my opinion of, and my practice and experience in, those parts of agriculture that have come under my notice.

To the accomplishment of any business, nothing is more essential than to have a general plan laid down. Although agriculture is less susceptible of regular system than many of the mechanic arts, yet it is not so much so as many of our farmers believe. Economy and proportion are subjects that ought to be closely examined into, and unremitting industry used to carry them into effect.

Of plan and proportion, I shall endeavor to give you a general idea of what I mean. The farm on which I now reside contains about one hundred and five acres, independent of about sixty acres of woodland. This I have divided into ten parts, as nearly equal as circumstances will permit, with the addition of two lots for raising fruit and garden vegetables. Two parts are permanent meadow, or nearly so, the other eight, (say eighty acres) are arable, divided as follows: ten wheat and rye—ten oats—ten Indian corn—twenty timothy and clover, for mowing, and the remaining thirty pasture, for summer feeding cattle, &c. I mow generally from forty to sixty tons of hay. This hay, with the straw, corn fodder, and stalks, is sufficient to winter from twenty to twenty five head of cattle, and eight or ten horses, my own and horses from the city at livery. The manure made from this stock, together with compost, is generally sufficient to manure well, from twelve to fifteen acres. Three good horses and a yoke of good oxen, are, with proper management, sufficient to perform all the work on a farm of this size. The horse is a noble and useful animal, but at the same time a very expensive one; and most farmers keep more than is necessary, hence a considerable source of loss. The cruel practice which most of the men we employ on our farms, of overloading, whipping and straining those animals, deserves much attention from the farmer. I know farmers, from suffering this kind of cruel misconduct, who lose one or two horses every year. This is a heavy deduction from the small profits of a common farm.

65 *Of Raising Grain.*—First, of Indian corn. Various modes of cultivating this crop have been recommended by different farmers, as being the best. My practice generally has been by breaking up the sod in the fall, winter, or early in the spring, as time and circumstances have best suited. I have found but little difference as to the productiveness of the crop, from either fall or spring ploughing. Fall or winter ploughing has this advantage, it forwards the spring farming, and in cold late springs, the grub or cut worm, and other insects, have not committed so great ravages. The last of April or beginning of May, I harrow the ground twice, with three horses, the teeth sharp, and a weight on the harrow, so as to completely pulverize the surface. Then commence double furrowing, at the distance of about four feet apart, leaving a small ridge or cone between them: then a single furrow across, very shallow, just so as to make a mark at the distance of five feet. I prefer early planting, say from the first to the tenth of May: three or four grains to the hill is sufficient. Two or three weeks after the corn is up, commence harrowing over the row, raising the middle teeth so as to prevent the corn being torn up. A few days after this operation, should the grass and weeds be springing up, run the hoe harrow between the rows, which will completely clean it, pulverize the ground, and leave it in a fine situation for the growth of the corn. The last of June or beginning of July, perform the last ploughing, not very deep. After harvest, should the grass and weeds be springing up, run the one horse harrow through it. Nothing more until the corn is ripe enough to cut off and shock up. This cutting and shocking, is by some of our farmers, considered a troublesome and expensive job; but from the experience I have had, I think it much the best plan. The food it makes for cattle, and the quantity of matter for manure, very amply repays the additional trouble over the old fashioned way of topping and stripping. I have tried most of the various modes of raising corn, that have been recommended, and I think the one above described the best.

Of Oats.—This crop generally follows the corn. After ploughing the ground as early as is possible in the spring, I sow as early in April as the season will permit, about two bushels to the acre; but if the land is very good, I prefer two and a half bushels. I prefer cutting the oats before it is very ripe, and as soon as sufficiently dry, get it in, without rain if possible. Thus got in, without rain, the straw is very useful in feeding the out cattle. It is much better than second crop clover hay. I have raised excellent crops of oats sown just after turning down the sod.

Of Wheat.—Wheat I generally sow after the oats crop. I turn down the oats stubble as soon as practicable. A week or two after the ploughing, harrow the ground well. Previous to hauling out the compost and well rotted dung, I strike out the field into six or seven step lands, and plough three bouts of each land. On the ploughed part I hauled the compost, from twenty-five to thirty cart loads per acre, and from fifteen to twenty cart loads of well rotted dung.

When the manure is thus out, I plough out the middles of the lands, then spread the compost and dung as even as practicable. In the last week of September, or first of October, sow the wheat, about one and a half bushels to the acre; harrow the ground twice: first the same way it was ploughed, the second across. After the harrowing is finished, open all the furrows and make others if necessary, so as to drain off, after heavy rains or the thawing of snow, all the surplus water. I generally sow the ground as soon as I can with timothy seed, about three or four quarts to the acre.

Of Rye.—Rye grows best on a light sandy soil; but I have had excellent crops from low clayey ground. In such grounds it is a much surer crop than wheat. One bushel of good seed is sufficient per acre. The ground ought to be thrown into ridges, from six to eight feet in width, the furrows well opened, so as to drain off the surplus of the water. Water furrowing is a material point in low lands.

Of Buckwheat.—This is a very uncertain crop. It sometimes fails from drought; but most frequently from excessive hot weather and fogs, when it is in bloom, and from early frosts, before the grain is ripe. I have seldom got more than one good crop out of three. It is excellent for reclaiming wild land that is filled with noxious weeds and trash. I have succeeded best from the following mode of cultivation. Break up the ground in the month of May, harrow it well and lime it, say from twenty-five to thirty bushels per acre: cross plough the ground about the middle of July, and sow about three pecks of seed per acre, if the ground is good: if not very good, one bushel will not be too much. Buckwheat is of rapid growth in good land, and branches out in proportion to the goodness of the soil. This is the reason why less seed is required in rich than poor land.

Of Barley.—I have not been much in the practice of raising this crop. My soil is rather of a clayey kind. It grows best in a fine light, dry, rich soil. It should be sown as early as possible in the spring, from one and a half to two bushels per acre. I have had it to yield from thirty to forty bushels per acre.

Of Raising Vegetables.—First of potatoes. In raising this crop, I have tried a variety of modes and seasons of planting. I have planted as early as the 15th of March, and as late as the 31 day of August, both of which were excellent crops. These are the two extremes of my early and late planting. I have planted at almost all times between those two, with various success. I have planted in what is called the right time of the moon, and the opposite. The best crop I ever had was planted in what the knowing ones called the wrong time of the moon. I have but little faith in those lunar notions. Experience induces me to prefer from the 10th to the 20th of May for planting. All depends upon tillage, seed, soil, manure and season. Good seed, light soil, well tilled and manured, and a reasonably moist season, never fails to produce a good crop. By good seed, I mean large, round, handsome potatoes, judiciously divided or cut, so as not to leave more than two or three eyes in each piece; those to be planted about eight or nine inches apart: with respect to manure,

twenty or twenty-five cart loads of dung, fresh from the stable or shed, and thirty bushels of lime per acre, carefully spread. The potatoes should be dropped in every second or third furrow, having respect to the width or narrowness of the plough. If the dung is long and strawy, it should be raked into the furrows where the potatoes are dropped. If the planting is under a fresh sod, the liming should be deferred until the tops are just coming through the ground, then harrow, and spread the lime, and then harrow again. When the potato tops are four or five inches, they ought to be ploughed very shallow with a one horse plough, the share should be as sharp as a knife, so as to cut all the grass and weeds that may be springing up. I think a sod equal to a fallow, and some seasons much better. Last season I planted under the sod and in a fallow. The sod produced almost double the fallow crop. They were planted as near the same time as possible, and manured equally the same.

(To be continued.)

FARM STOCK.

Report made by a committee of the "Agricultural Society of Pendleton, S. Carolina.

READ NOVEMBER 12, 1818.

The Committee appointed upon "Farm Stock, beg leave now to report:

That this subject embraces a very important branch of husbandry and rural economy, and is very extensive when taken in all relations, must be obvious to all who have paid the smallest attention to agricultural pursuits. Your committee, believing that it was only intended by the society that they should lay before it such facts and observations as were calculated to shew the preference of one species of the same genus of domestic animals over another, so far as it respected the operations of husbandry, or the comforts and profits of the farmer, will confine their observations to such as are considered of the first importance, and endeavor to shew why the farmer should turn his attention to the raising and using one kind rather than another. The breeds of horses not being so distinct in this country as in some others, it is difficult to describe the race most valuable to the farmer as best suited to the business of agriculture. In some of the middle states, the large dray breed is used as best suited to their heavy market wagons; and in the eastern and all the southern states, a middle sized horse is preferred, on account of his not consuming so much food, his being able to endure much more fatigue, and perform more work in the same time. Your committee are of opinion, that, if horses are thought the most proper animal upon a farm, for the wagon, the plough, and the cart; those which spring from the common breeds, and partaking a little of the blood-horse, are the best calculated to perform all the services of the farm horse, with the greatest ease and expedition, and with the least expense to the owner. But those which are raised upon the farm, beyond what are necessary for its use,

should, at any rate, be crossed with the best blood in the country, as such will not cost more. In the raising, than the coarsest, and will command a much greater price for the saddle or pleasure carriage. And if any particular breed of fine horses has shewn its decided superiority, in the southern states, for vigor of constitution, activity and strength, it is that which has descended from the Genius* stock, which has, from its make and qualities, become almost a distinct race.

It has long been a question, however, whether the horse or the ox should be preferred as a beast of the plough. It has been urged in favour of the ox, that he was capable of bearing great fatigue, was equally docile, lived nearly as long as the horse, subsisted upon less expensive food, and almost entirely without grain, and in the end was convertible into the most delicious food for man, and afforded valuable materials for his comfort and convenience. That if by accident he became lame or blind, still he would depreciate but little in his value, whereas the horse, under the same circumstances, would be worse than useless. To this it is answered, that although the horse is a more delicate and expensive animal, whose carcass is worth nothing, yet that he more than compensates for these qualities, by the expedition with which he performs his work, thereby enabling the farmer to save much time, by doing so much more in the same space, and "time is money." Although the ox does not require so much grain as the horse, yet he demands a greater quantity of provender or long forage, and as he is certainly less capable of bearing heat than the horse, it seems that he is only suited to an elevated and cool country, which affords good pasturage and meadows; and therefore, before the ox can be worked to great advantage in any country, grass and hay must be first attended to. For these reasons, where the ox was formerly the common beast of the plough, the horse is almost universally substituted. To find an animal uniting most of the good qualities of the horse and ox, with but few of the objections applicable to either, is certainly a great desideratum in agriculture. In the opinion of your committee, the mule is better calculated to answer the general purposes of the farmer, than either the horse or the ox, as uniting the good properties of each with but few of the bad. Nothing but ignorance and prejudice could have kept the value of this useful animal so long from being known among us. But of what are ignorance and prejudice not capable? It is, however, very strange, that the most intelligent writers upon farm stock, appear, and acknowledge themselves to be ignorant of them as a beast of the plough, particularly as their great value has been long known in the south of Europe, Africa, Asia, and South America. In old Spain, the stock, from which they descend, is as much attended to, in point of pedigree, as the finest horses in England—there, a pair of good mules will cost twice as much as

a pair of good horses, and in South America, a mule is considered worth many horses, and in some parts of our own state, one good mule is valued equal to two plough horses. These facts are stated, to shew that we are not singular in thinking highly of mules, and for this preference it is thought there are reasons sufficient to convince every calculating mind. The mule is more easily raised than the horse, more able to bear heavy burthens equally strong for the draft, more patient, equally docile, will live twice or thrice as long, capable of enduring much more labor, will do as much work in the same time, and will not be more than one half the expense, as they will not eat more than one half the grain, will make use of long forage, which the delicacy of the horse will reject, and will bear the heat full as well, perhaps better. Besides all this, they are able to work sooner, and are only in their prime when the horse has become an useless expense by age. From the smallness of their foot, they may not answer so well as the horse in deep, miry roads, but from the excellence of the hoof, they will never require to be shod, except upon long journeys over rocky roads.

That most useful and neglected animal the cow, has engaged the attention of your committee, and as this is believed, upon the whole, the most important stock for the farmer, much might be said upon this subject, but it is thought unnecessary, upon the present occasion, to say more than to express an opinion, as to the kind which is the best for this country, and the reasons for that opinion. That the stock which is mingled with what is here called the English breed, and in England the short-horned or Dutch breed, is better than the common stock of the country, it is believed, no one can doubt, who was present at the cattle show of this society, in September last, or who has, at all, attended to the improvement of this animal. There, several calves were exhibited, all of which, except one, partook in different degrees of this foreign breed of cattle. The one exhibited of the common breed, was certainly very large, and did great credit to its owner, and at the same time no one present could think that it was at all comparable to any one of the others. This was conclusive as to appearance, and if they are not more tender or difficult to keep than the common breed, they must be better. Those of the committee who have had the opportunity of judging from experience, upon this subject, think them not more difficult to keep; but on the contrary, think that they will look better, grow much larger, and take fat much sooner upon the same pasture. This observation relates to enclosed pastures, and they would not be understood to say, that this breed of cattle requires no more food than the common; but, on the contrary, they believe that cattle of all kinds require the quantity of their food to be in proportion to their size. Although this breed of cattle is thought more tender than others, in England, yet from its superior excellence, it has been increased in most parts of that country. Notwithstanding cows of this race give much more milk than those of the common, yet much of their excellence does not arise from this circumstance, as they

* By reference to the Steed Book, it will appear that the imported horse which has given a name to this stock of horses, was Genius, and not Janus, as is commonly supposed.

can only yield in proportion to the food which they consume. Their superiority arises almost entirely from their size, the smallness of their bone, in proportion to their flesh, their inclination to take fat earlier, and to make fat upon the best parts. This inclination to take fat earlier, and to make it upon the best parts, is attributed by the most experienced breeders to the beauty of their form and they are governed in their selection of stock to breed from, not so much by the size as by the smallness of the bone, and the beauty and symmetry of the form. It is much to be regretted, that this valuable animal, which contributes more largely to the comfortable subsistence of man than any other, is much neglected in our country, and left to bear every wind and rain which descends from heaven, without a shelter, and with no better allowance than straw or husks. If the farmer, instead of keeping a large stock of impoverished cattle, which tend to impoverish him, and which can yield nothing to his comfort or his profit, would keep fewer, which would enable him to keep them better, he would, for all his additional kindness and attention, receive ample returns, in a rich variety of delicious beef, milk, butter and cheese.

However valuable and important a small stock of sheep must be to every farmer, for food and clothing, yet an extensive flock is not so valuable as in some other countries, where the carcass is in great demand, and the fleece commands a ready sale. But it is very desirable that every one who keeps sheep, should have the kind most useful for him, and suitable to his local situation. Some years ago, it was thought that wool of the finest kind, would be an article of the first importance in this country, and many men in our country were merino mad. But the bubble has burst, and many have learned, by experience, that this was a delusion, and now know, that a flock of sheep larger than is necessary for domestic consumption, is a useless expense. But this delusion of the day has been of great importance to the country in causing much more attention to be bestowed upon this valuable domestic animal. It is believed that a mixture of the merino blood improve our native sheep both in the carcass and fleece. All crosses of this breed, make the stock retain its wool much better. We know but little of other breeds in this country; but perhaps if we could get the Bakewell or Dishly breed, which is so remarkable for its size and inclination to take fat, it would make a valuable acquisition to our farm stock.

As to hogs, poultry, &c. your committee having but little information, and fearing that they have already trespassed too long upon your patience, and said nothing which may afford a useful hint to any one, beg leave to be silent.

November, 12, 1818.

SEGARS AND ECONOMY.

FOR THE AMERICAN FARMER.

Sir—Among the numerous small, fashionable articles, that might be mentioned as subjects of retrenchment, the above is one of peculiar note. Its use is not only very common, but very mischievous also.

It would certainly be a very great discomfi-

ture for a person to be instantly deprived of such a companion, because it would not only leave its physical action unsupplied, but its mechanical also: i.e. its stimulus, as well as its weight and distention. The Tongue would always be in quest of a relish which it never could find, and a man would feel as vacant about the mouth as if he had been suddenly deprived of a fore tooth.—Indeed, I fear some of the old smokers would have a round hole left, for a time, at the place where the segar was used to be introduced, which might be very inconvenient in windy weather.

To supply so great a defect, I would propose as a fashion, for this is the great secret in making changes, that each smoker would procure a stick of soft wool, of the size of a segar: and have it carved, and pointed or stained to resemble one; and if it should be found impossible for our common painters to make a good likeness of fire, I would recommend a small piece of phosphoric wood to be attached to the end, which would give a very true appearance by night. This stick would wear away by degrees, and the hole in the lips lessening with it, no inconvenience would accrue, and the habit would be gradually broken. But though the stick would so happily supply the mechanical department, it would have no physical effect: to supply this, I should have been very much at a loss, but for one of my friends, a Doctor, who recommends that the end of the stick next the mouth, be rubbed occasionally with a bit of crude, sal-ammoniac. This hint was taken from one of the faculty at New-York, who invented a method of salivating his patients without mercury—he had a pair of zinc gag-plates, which he introduced into the patients' mouth, and when they did not operate quickly, owing to the state of the weather, or the excited state of the patients' blood; he rubbed their tongues with a bit of sal-ammoniac, and the patient became instantly salivated, and cured to the great discomfiture of the tardy Mercurial Doctors.

That segars are mischievous, there can be no doubt.—First; to the purse. A free and liberal smoker, will sometimes use one hundred dollars worth per year;—a sum, that not one man in one thousand, has to spare, after paying off his yearly expenses; a sum, that, if preserved, would be sufficient to hire country houses for all the poor children in our large southern cities, that are annually attacked with cholera, and who die by the thousand, merely for the want of a change of air.*—And, 2dly; to the morals. For, independently of the expense, which is a breach of moral agency, being a bad use of the means which Providence has furnished, there are various ways by which smoking pollutes the pure moral spring. It dries the mouth and leads to drunkenness. It invites to idleness, especially round the table. It assists the intoxicating effects of liquor, and stupifies

the finer feelings.† In the next place; it is inimical to the health of the system—frequently causing carious teeth and dyspepsia.—It also causes the human physiognomy to be perverted.—The lip and the lower jaw are pushed out to support the segar, whilst the neck and shoulders have to assume a position to counterbalance the jaw; man was made upright in figure, as well as morally; and let it be remembered that one of the characteristics of the human species, is a frontal bone and chin, on a perpendicular line. Suppose then any morbid defect should cause the forehead to recede, whilst the jaw was protruded, how beastly man would then appear.—Accidents sometimes become hereditary y. i. e. a father, with a chin lengthened out an inch by smoking, begets a son with just such a chin; and this son feeling a hereditary disposition to smoke, embraces the practice, and lengthens out his chin another inch, whilst his neck and shoulders conform, and a pretty personage he becomes.

In this way deformity is increased. The daughters of smokers feeling a hereditary propensity to smoke, fall upon some means to satisfy the desire; if poor, they smoke with a pipe, ruin their teeth, spoil their breath, sallow their skin, and expectorate so much, that they appear in early age, as shrivelled as an apple that has lost its juices; and if rich—they are ashamed to smoke, and what then? under the pretence of cleaning their teeth, they rub on pounds of Scotch snuff, and keep at it for hours; till at length their beauty is gone, and their nerves shaken in a premature palsy; whilst the doctors are called upon to prescribe in vain; they being kept in ignorance of the true cause of the malady.‡ *Mark this! ye Mothers.*

A still more certainly bad effect in the use of segars, is to produce a cancerous ulcer on the part of the lip where it was introduced. The writer of this attended three operations for this disease, and every patient attributed the cause to the nitre in the segars.

In addition to the above list of evils, I will mention one of the most serious nature, that extends beyond the range of the smokers. This I shall elucidate by a positive fact. A carpenter undertook to build a house for me in Baltimore—when the floors were laid, I told him that such of his people as smoked segars, must retire under one of the chimneys, and there perform their smoking. This they objected to, assuring me that they never knew one instance of a segar taking fire even among the shavings. As I knew that the segars contained nitre and some phosphoric ingredients, I resolved to carry my point, and told them so, and, in order to convince them, I demanded the two segars they were then smoking. These I threw into the rubbish; in ten minutes one of them blazed out: the other remained quiet a while, but after opening a door, that burst into a flame also.

These two facts surprised them, and I gained my point without further opposition—I have now

† Burns always characterized his drinkers by the appellation *dronghty*—to which state segars greatly contribute.

‡ An instance lately occurred, where the patient alternated this bad habit, with the use of opium, which produced death, and the whole facts were kept from the faculty, till it was too late to remedy. It is far more frequent than is suspected.

* It is truly astonishing, that whilst asylums are opened for so many hopeless diseases, none have been projected for the infants of indigent parents—a few one story log houses on the hills near Baltimore, under proper regulations, would save ten lives a week, for two months in the year—a number greater than all our infirmaries put together can save in a year.

only to ask the question—-who among the smokers of segars can name the place and time, where he threw one half of the fiery stumps of his segars even for the last twelve hours? are not these the causes of our numerous fires in the cities? Cellars and cellar windows, with hay and straw, are always ready to receive the hundreds of fiery stumps thrown away carelessly by boys, from 7 years old and upwards, as well as by men engaged in conversation, smoking as they pass along the streets.

S. V. S.

J. S. SKINNER, Esq.

LUNAR INFLUENCES—upon Animals and Vegetation disputed.

"He that observeth the winds shall not sow,
And he that regardeth the clouds shall not reap."

Ecclesiastes.

Among other prejudices established in the United States, and which sometimes appear in your paper, I know none more unreasonable than that which supposes the moon to exert a malignant influence upon the labour or industry of man—hence many of our countrymen kill their meat; plant and sow; and perhaps reap their harvests at what are called proper times of the moon, and avoid other times as carefully as if some great injury was to be apprehended.

Although I have frequently inquired of persons advocating "proper times" of the moon, how, or in what manner its effects were produced, I have never yet received any other answer, than—it is so; and that such and such consequences always follow.

For my part I have never seen any of the effects, either good or bad, that the moon is charged with—and am of opinion, that no one has made a fair experiment of such effects since those dark and ignorant times, when philosophy and astronomy were displaced by ignorance and astrology, who have maintained a broken empire even to our days. The time was (and is yet) in some countries, where eclipses, comets, and conjunctions of planets, would alarm the world with apprehensions of war, pestilence and calamity—and the truth of their evil influence is abundantly insisted upon, by many grave writers who lived a century ago. Human reason gradually has got rid of such unseasonable incumbrances in despite of all their pretended proofs—and left us at liberty to do what we please, whether Mars and Saturn be in conjunction—whether comets blaze, or eclipses darken; and it requires only a little more philosophy to get rid of the evil or good influence of the moon; which, like the prejudices just mentioned, belongs also to astrology.—The phenomena of the phases of the moon upon which such direful causes depend, are as follow: The moon revolves once a month round our earth, and according to her position, is apparently more & more enlightened, in a like proportion, until we lose sight of her altogether; the explanation of the various appearances of the moon, during her monthly course, are sufficiently familiar; but it is not so well known, or remembered, that the moon's revolution, on

her axis, is precisely equal to her revolution in her orbit; and, therefore, that though the moon is a globular body—yet she constantly keeps the very same face, or half, presented to us—and that we are as ignorant of the appearance of the other half as we are of what is going on in the planet Herschell.

Having premised thus far, let us examine whence the supposed influence of the moon can be derived. If it proceeds from the substance or body of the moon, we constantly have the same quantity of influence exerted on us—whether the moon be new, full, or in her last quarter; for, as before observed, the very same face, or half of the moon, is always presented to us—and as the influence is equal at all times, if there be any, how can one time be more proper than another?

If this evil influence depends on the light that we perceive, or receive from the moon, how is it that the direct rays of the sun have no such influence? and that, when reflected from the moon, they are so injurious? This sounds like saying any thing warm injures more than when red-hot—or, that a little cold is more disagreeable than intense cold. But, in the proportion that the light from the moon increases, it also decreases; and, therefore this reflected light is equally beneficial or equally injurious—in the first as in the last quarter, in the second as in the third; and should he at its maximum at the full. But the advocates of lunar influence say, the good effect belongs to the increase, the evil to the decrease, which is inconsistent with their theory; therefore, Mr. Editor, there can be no such good or evil influence attributable to the phases of the moon; and farmers may kill their meats, and saw their grain at those times that are most convenient, without in the least minding the moon more than the fixed stars.

The influence of the moon on lunatics, and on the tides, are often quoted as proofs of the power of that planet—and are wrongly twisted to support the fore-mentioned prejudice, as upon lunatics, the moon exerts no influence at all—I appeal to medical men and their writings for proof.

And the moon influences the tides in a manner very different from that ascribed to her by the believers in her good or evil influence—for they depend on her position in her orbit—and on her quantity of matter which attracts, and is attracted by our earth, exactly in proportion to their respective quantities of matter; this, with the added attraction of the sun, causes the tides—and if there are seas in the moon, our earth causes tides there as she does here.

A. K.

From the London Farmer's Journal of July 23d, 1821. ON THE ORIGIN OF THE DISHLEY BREED OF SHEEP.

SIR,

Having read in p. 223 of your last Journal, the letter of your respectable correspondent, Mr. B. R. Ridd, in which he says, "it is now well known to too eminent breeders of the Dishley sheep, that they were a cross between the Lincolnshire and the Peak of Derbyshire breeds of sheep?" I am desirous of calling the attention of that gentleman, and the breeders

of Dishley sheep, to whom he alludes, to the facts which I have collected and published, in pages 89 to 96 of the third volume of my *Agricultural and Mineral Report on Derbyshire*; by which it appears, that the Peak-hundreds of Derbyshire possessed, at the period of Mr. Bakewell's early operation in rearing his peculiar breed, two distinct breeds of sheep; besides a third sort, a cross between them. The first was called the *woodland* or *moorland* sheep, peculiar almost to the elevated healthy and boggy moorlands in the north and north-west of the county (improperly now called *woodland*, since they have become almost destitute of wood) extending thence into Yorkshire and Cheshire, in which districts these sheep are still kept in great numbers: the second were called the *old Limestone* Derbyshire limestone or *Peak* sheep, which were almost confined to the Limestone hills, stretching from near Ashburn to Buxton: and the third were a cross between these, and called the *gritstone* sheep: these last kind had little merit, and are, I believe, now quite extinct, and the second kind nearly so. I am desirous of learning, through your instructive pages, to which of the two first of these kinds of *Peak* it was, that Mr. Bakewell had recourse? I am, Sir, your obedient humble servant.

JOHN FAREY, Sen.

ON WHEELS.

SIR, Wills, June 20. 1821.

With the exception of a short, sensible, practical letter from J. C. dated Alconbury, in your No. 715 the merits of the different sorts of wheels, not appearing to me to have been discussed in a sufficiently clear manner in your columns, I am induced to offer my mite of information on this highly important subject, which so well deserves the attention of every man who uses any sort of wheeled carriage.

Is it not very remarkable, that this nation which has advanced so far before all others, in its machinery and its mechanical science, should be so backward in applying science and experiment to the most important, because the most numerous of all its machines, viz. its wheeled carriages? and is it not still more wonderful that, the strong and universal principle of self-interest should not have been able hitherto to overcome the delusions of ignorance and prejudice, which, always hostile to true economy, are in the present instance so incalculably expensive, by the great increase in the wear and tear of our carriages, and our roads, to say nothing of our cattle.

My attention has been more strongly attracted to this subject, by my having remarked, during a recent tour on the Continent, that the cylindrical or flat rimmed wheel is in universal use, whilst the conical or bevelled rim is altogether unknown, and that the loads drawn by any given number of horses are vastly greater than in England.

Near Brussels the coal wagons having cylindrical wheels with perfectly flat rims of from six to nine inches wide, are allowed to weigh more than ten tons English, and on level ground they are drawn usually by five or six horses, being allowed at the hills a reinforcement of two, three or four horses more, according to the degree of steepness. The road is paved, and of course the draught is somewhat lighter than on our roads; but perhaps this advantage is nearly counterbalanced by the striking fault of the extreme smallness of their front wheels, and by the less firm footing of their horses on the slippery surface of the pavement.

Now, granting that the Belgian horses are excellent in size, shape, and condition, let me ask our great carriers, and all others, who are blind enough to load heavily upon conical wheels, whether with their best horses, they are able to draw loads at all to be compared with those above mentioned? And if these gentlemen are forced to allow their own inferiority, let them point out any other sufficient cause than that of the form of their wheels, which, as all experiment has shown, are contrary to mechanical principle, although by some fatality they are universally used.

* Note—not where the road is horizontal.—Borr.

Allow me to conclude with a trifling feat, which afforded me much satisfaction when I witnessed it, and which may be useful to some of your plain unscientific readers. By the road side, between Antwerp and Ghent, on a holiday, I saw a party of little peasant boys playing at a sort of bowls, but instead of being spherical, like ours, their bowls were so many conical wheels in miniature, their two diameters being about six and eight inches, and their breadth, or, to speak more clearly, their thickness about three or four inches. The skill of the players consisted, of course, in judging of the circles necessary to be described (by bodies incapable of moving in a straight line) in order to arrive at the mark. It was impossible to view this striking combination of rude materials with scientific principle, without making the humiliating remark, that on the very important subject of wheels the plough boys of Flanders were better informed than the great wagon masters of England. It will afford me real pleasure to learn that this story shall have induced any practical man to reflect on the absurdity of forcing forward, in straight lines, wheels so shaped as to have a natural tendency to move only in circles; and to those whose minds are disposed towards investigation, I beg to recommend the perusal of a very clear, satisfactory, and not expensive, "Essay on Wheeled Carriages," by Joseph Storr Fry, who is himself a practical man, and writes from experience. I remain, Sir, your humble servant, and constant reader,

AN EX-FARMER.

Editorial Correspondence.

Extract—LIVE STOCK.

PATERSON, 24th Sept. 1821.

Although no longer a farmer, yet I still have the greatest desire for promoting agriculture, as the real foundation of national prosperity—that on which our manufactures and commerce must depend for ultimate and durable success.

We have, the summer past, formed an agricultural society in this county (Essex), and shall have a stated annual meeting on the third Wednesday of October. When I removed from this place in 1776 to Rome, in the present county of Oneida, where I purchased a farm of upwards of 500 acres, I immediately set about establishing a grazing and stock farm. As I removed no stock with me, all was to be purchased; of course I bought only such as promised to be good breeders—and those of all kinds suitable for a large farm in the *back country*—viz: brood mares, cows—sheep and swine: as to the first I did not succeed; it was a losing business—but as to cattle, sheep and swine, my success fully answered my expectations, although I could at first procure, of no but cattle, only half breeds to improve the native stock of cows, in the purchase of which I had been very cautious and particular as to size and form. The first bull was a cross of a noble bull of the Dishley (Bakewell) breed, with a small spall (no horn) Virginia cow. The Dishley bull had of course long straight horns—the calf which I procured had small *cramp* horns, seemingly not fixed in his skull; in shape and form he was like the sire; in size like the dam; in colour like neither. Of his calves, some were *pole* like the dam; some crumpled horns, like himself; and others long horns, more or less like the Dishley breed—but all inclined to fat early, and generally quiet, or *orderly* cattle. A few years, subsequently, I procured a full bred English bull calf, or a much larger size, &c. with larger bones than the Dishley, with which I crossed my former stock, and by that cross procured finer *working* oxen; yet not better calculated for the *butcher*. To give you some idea of the value of this breed and its subsequent crosses, a neighbor of mine had a cow from the small bull of the Dishley breed, from which he had a heifer calf that he kept; when the heifer was two years old, she had a heifer calf by the same bull—the same spring, but 4 weeks

earlier, the dam had also a heifer calf, by the same bull. They were the two handsomest calves I had ever seen—and I persuaded the owner, who was a mechanic, and not a farmer, (the only occupied four acres of choice meadow) to keep these calves, instead of killing them for *veal*. They never ran out, but were tied in a cool shed in the summer, and fed with fresh cut hay, and Indian meal; and through the winter with dry hay and Indian meal. The last week in April of the next year, the owner put them into a boat and carried them to *Sciencetoeby*; thence by land (13 miles) to *Albany*, where he sold them to a butcher, at the rate of ten dollars per hundred pounds. The two weighed 1300 lbs.; of course he received \$120 for his two calves, one being 13 months old, the other 12 months; which would have been the price of a middling pair of oxen. The next year he had his cow to my large bull, and her calf at a few days short of a year old, weighed, when killed and dressed, 723 pounds; that is the weight of a good ox.

When I left Rome, in the fall of 1810, I was inclined to have part of my young stock drove hither for a market. Amongst them were 5 steers, that were three years old the spring before—say three years and six months old when sold in the month of November to a butcher: they had never been fed with grain at any time; in summer good common pasture; in winter, well housed with plenty of hay—when killed they averaged 1300 lbs. each for the *meat*, hide and tallow not weighed, being given in by the terms of purchase. Now, in this part of the country, we think an ox that weighs 1000 lbs. (meat, hide and tallow) a very fine ox: I mean what is termed *grass fed* oxen. I am sure that 800 lbs. for the quarters only, would be more than an average of all the fat oxen, from 6 to 10 years old, slaughtered in this and the northern states. What a saving therefore would such an improved breed of neat cattle be to the whole farming interest of the United States!

My success in improving my breed of sheep was equally satisfactory: my ewes were selected from a flock of English fine wool sheep—the buck was 7-8 blood of Chancellor Livingston's flock; afterwards crossed with a full blood buck, of Col. Humphrey's imported Merino's, remarkable for the fineness of their fleeces, yet much smaller carcasses than Mr Livingston's, which were of the Rambouillet-French breed. I have a small flock of these yet; but all my stock of neat cattle, of the improved breed, are gone. Indeed the pasture lands of this village would not carry such stock; although sheep answer very well.

We have a very valuable breed of swine in this neighborhood, and which is said to be a cross from English swine, with African or Chinese. They were introduced from the *Spanish Main*, or rather from the Dutch settlement in South America.

PETER COLT.

How highly it would conduce to the interests of agriculture, and the improvement of our live stock, if all farmers would take pains to select their *breeding* animals, and particularly notice, and make public the result of their experiments. Every farmer breeds more or less stock of various kinds; and it would be almost as easy to conduct it according to some sort of system and principle, as to have them all to have indiscriminate intercourse, without even taking the trouble to make any selection, except to cull out the best or—slaughter. *Ed. Am. Farm.*

Beaton's New Husbandry.

The pamphlet republished by Messrs. Carey and Son, of Philadelphia, on this subject, is, no doubt, in many hands; and is well worthy the attention of our farmers; and especially of those who have the spirit to make experiments out of the beaten track; and to encounter prejudices. General Beaton has published a supplement to his first pamphlet, which is noticed in the following letter, published in the *British Farmer's Journal*, of July 30th, 1821. It is addressed to General Beaton; and shews the estimation in which the system is held.

R. P.

Ackworth, Moor Top near Pontefract,
(Yorkshire) 14th June, 1821.

"Sir,

"Please to accept my warmest thanks for the copy of the supplement to your new system of cultivation. I have perused it with the greatest attention, and am happy to say, I have found a great deal of very valuable information, which I mean to profit by, in the manner I have done by your former publication. I shall strictly attend to the additional directions, in every respect."

I have great pleasure in informing you, that the gentlemen and practical farmers in this part of the West Riding, are quite alive to your system. The man I employ to make my *Scarifiers*, has so many orders, that he cannot get them executed in time; by which means he gives great dissatisfaction; and some of my friends, from that eagerness to supply themselves and their friends, have taken the liberty, in my absence from home, to send off some of my *Scarifiers* to the East & North Riding of this county; and old red noses to be made, in lieu of my half worn out ones. Such has been their eagerness, after seeing the operation of the *Scarifier*; and what I have done agreeably to your new system. The present depressed state of agriculture, and the low price of produce, must make many converts to it.

I have some very fine looking crops of wheat upon bare and bare stubble, well scarified and pulverized after last harvest. The rubbish and sods arising from the land, were burnt, the ashes spread and two bushels of wheat sown, per acre; and I scarified twice, to the depth of five inches. No other implement of husbandry was used;—not even a harrow.

I have also burnt a considerable quantity of *Clay*; and used the same as manure. The clay burnt with *Coal-slack* and *Cinders*, being much calcined, does not answer so well as the clay burnt or smoked with *wood* only. The latter I have used with good effect both upon arable and grass land; and have given up the burning with coal-slack and cinders.

You shall hear from me again when my wheat crops approach the sickle."

I am, &c.

THOMAS GEE.

WHEELS FOR CARRIAGES.

A controversy has been for some time past, carried on in England on the subject of *WHEEL CARRIAGES*. It seems well worthy the attention of every one who uses any sort of such carriages. Pamphlets are written, and many discussions appear on the subject. Those who have been accustomed to use the conical wheel, which is the one common with us, oppose any innovation. But the advocates for the cylindrical or flat rimmed wheels are numerous; and bring forward both experiments and scientific arguments in favour of them. It is said, that, in *Flanders*, the cylindrical wheels are generally used for carriages of burthen; and that, with them, five horses will draw ten tons, on thin paved and level roads. For such burthens, however, auxiliary horses are employed at hills. The wheels are without *Dish*, broad, and perfectly flat. It is said that conical wheels have a tendency to move in a circle; and that it is plainly proved by experiments, that the draft, with such wheels, has not only to encounter the resistance of the weight to be moved forward; but also to overcome this circular tendency.

In *Flanders*, the game of *Bowls* is played with conical *Bowls*; and the skill is, what arch of a circle to describe with them? so as to arrive at the mark; whereas spherical bowls roll in straight lines. The Flemish bowl said to represent the conical and dish wheel; and it is sarcastically alleged, that every

"The Flemish *Bowls* are about three or four inches thick; and the diameter of the outer circle, or base, is six to eight inches; the less or inner circle of the truncated cone, is always one to two inches shorter in diameter. The conical form gives it the like bias to a circular course, that loading on one side of a spherical bowl, produces for a similar purpose."

Flanahy, on playing at bowls, "is better informed on the subject of wheels, than the great wagon masters of England." An essay on wheels, written by a *Joseph Starrs Fly*, is highly recommended by the cylindrical wheel advocates.

This subject is mentioned for the consideration of our scientific as well as practical citizens; to the end that if the cylindrical, or flat wheel, has advantages over that now in common use, it may have a fair experiment made—to test its alleged superiority, if any it has.

R. P.

A day or two ago, I went to see our new flax machine. It promises to be more effective than any English one. It breaks both retted and unretted flax equally well. Some very practiced alterations will make it complete. It is calculated to break 300 pounds a day—A water or steam power would double its performances, whatever amount the present hand movement may produce.

Crow-Foot Grass.

LAUREL SPRING, (Geo.) August, 1821.

Inclosed I send you two heads of an indigenous grass; we call it Crow-Foot—it grows on our poor pine lands: after they have been brought into cultivation, with a very slight manuring, and for a summer or fall pasturage, is greatly superior to crab-grass, or any of the small grains. If you have none of it, and are desirous of experimenting with it, let me know, and you shall have of the seed.*

* Our friends may take it for granted, that we shall be happy to receive and distribute any thing in this way which may prove useful—much good may be done by this interchange of the productions of different soils, climates and countries.

Ed. Am. Far.

For the American Farmer.

On Millet.

George Town, D. C. 1st Oct. 1821.

TO JOHN S. SKINNER, ESQ.

DEAR SIR—I saw a communication in your last valuable paper, on the subject of Millet, which is well calculated to discourage the growth of this grain.* and as I have been more fortunate than the gentleman in Baltimore county, I am induced to give the result of an experiment, which I made with Millet this season.—I had it sown about the middle of May, and the grass cut from the 10th to the 20th of August, perfectly ripe, a part of which was so fine, that I got a surveyor to measure 1 quarter of an acre of it, which I had cut and threshed out separately: this produced eight bushels and one peck of grain, and 7 pnt, 1 qr. 13 lbs. of hay; and I doubt not that I shall increase the quantity next year, both in hay and grain.—I will observe that this part of my ground was free from blue and crab grass, and that the growth was very luxuriant, being in its green state remarkably succulent—it grew from 5 to 6 feet high, the heads generally very fine and full of grain, one of which was counted and had nearly seven thousand grains. The seed is of a rich golden color, about the size of a pin's head. The beauty of its growth is not rivaled, except by Indian corn, that good blessing. Indeed it was considered a perfect spectacle by many who saw it, whilst ripening. In another part of my ground, I sowed Millet on about two acres of land, a part of which is very sandy.—This did not succeed so well; there came up an unusual growth of the Crab and Fox tail grass, which choked the ground and hindered the growth of the Millet—on these two acres, it was not more than from 18 inches, to 3 and 4 feet high—the heads generally small, and consequently a less proportion of grain, but the hay I consider better—some of the hay was

put in the rack before my horses, with most excellent hay from clover and orchard grass mixed—they selected the Millet hay in preference. I am satisfied that the millet ought only to be sown on good land, free from the blue, the crab and the fox tail grasses.

In addition to my own experiment, I will observe that I sent to my respectable neighbor, the Rev. Mr. McKelroy, two quarts of the seed, which he informs me was sown on a lot of about one quarter of an acre, adjoining the college garden: that after threshing the grain, and cleaning it perfectly, by passing it several times through the fan—he had six bushels, weighing 55 pounds each, and one thousand pounds of excellent hay. This gentleman proposes, having some of his grain ground the coming week, and will make experiments with it, in various ways—the result of which I shall take great pleasure in making known to you.

Respectfully your obedient servant,

JOHN COX.

On Tuesday evening last, the *New-York Horticultural Society*, held their third anniversary at Flora's Hotel.

The following are the officers of the Society, as elected at this meeting for the ensuing year, viz—

Thomas Storm, Esq. President; William Wilson, Vice-President; Peter Hattrick, Treasurer; Michael Floy, Secretary.—And the Standing Committee, as follows:—

John McNab, John McIntyre, Wm. Fairbairn, T. Pringle, William Carr and James Dick.

After the ordinary business of the society had been transacted, the members partook of an excellent dinner, where mirth and good humor prevailed.

Cholera Infantum, or Bowel Complaint in children.

If the child has acidity in the stomach, as is generally the case, a little cool chalk and water will correct it: and if it be simply owing to relaxation of the bowels from the heat of the weather, astringents ought to be employed.—The brown shell of the tamarind seed, carefully cut away from the kernel, is an excellent astringent: 5 grains of this reduced to powder, and 15 grains of chalk mixed, three or four times a day, is an admirable prescription, with one drop of laudanum—the whole mixed in a table spoon full of cold water. Distilled water refrigerated with ice, ought to be given very frequently in small quantities at a time.

When pain and straining takes place, it is obviously a different disease, approaching to dysentery, and requiring very different treatment.

In the bowel complaint of our summers, the practice of administering calomel, and other harsh purges, when the poor little patient is already purged and languid enough, must be improper. Gentle pukes must be better, and I am a strenuous advocate for cold water and country air.

Remedy for the Dysentery.

Take new churned fresh butter, melt it over a hot fire, and skim off the curdy part, give two spoonfuls of the clarified remainder, two or three times a day: it seldom fails of effecting a cure.

TO PRESERVE CORN.

Eiel is of Indian corn, bitten by the frost, ought to be immediately stripped of the husks, to save the corn from rotting. The ears will now be found sealed up, and extremely wet; let the husks be cut with a knife lengthwise of the ear, and it will save much labour in stripping down the husks.

Cure for Burns and Scalls.

Apply a plaister compounded of Burgundy Pitch, bees wax, and a little oil; it will afford almost immediate relief from pain. Let it remain on some days and the cure will be effected. I allow one fourth wax, add sweet oil, or other oil, lard, or fresh butter to it, to reduce it to a consistency not so soft as to melt with the warmth of the flesh, nor so hard as to irritate.

THE FARMER.

BALTIMORE, FRIDAY, OCTOBER 5, 1821.

PRICES CURRENT.

Flour from the wagons, \$6 12½—Whiskey from d 27 cts exclusive of bbl—Wheat, white, \$1 15 to 1 25—Red, do. \$1 10 a \$1 16—Corn, 53 a 54 cents—Rye, 60 cents—Oats, 32 cents—Barley, 60 a 65 cts.—Hay, pr ton \$12 a \$14—Straw do. \$8—Live Cattle, \$5 a 50—Codfish, per quintal, wholesale, \$3, retail 3 50 a \$4—N. E. Beans pr bushel \$1 12½—do. Peas, 75 cts—Prime Beef, \$9—Prime Pork, \$10½—Moss, \$15—Plaster in stone \$6 pr ton—do, ground, \$1 37½ pr barrel, 33 cts, per bushel, \$8 per ton—American White Lead, \$12 50—Ground do. 13 a 14—Lansed Oil, 75 cents—Fathers, 40 a 45 cents—Shad, new, \$6—Herrings, \$2 a \$2 25, declining—Fine Salt, 45 cents per bushel—Ground Alum do. 5 a 60—St Ubes, 60—Cadiz, 50 a 55—Turk's Island, 75—Beet, prime ps. 8 a 10 cents—Hams, 10 a 12 cts—Middlings, 1 cts—Butter, 25 a 37½ cents—Eggs, 12½ cts. per dozen—Cheese, 8 a 10 cts per pound.

NORTH-CAROLINA STAPLES.—Tar \$1 75, cargo price, plenty—Turpentine, soft, \$1 75 a 1 87 do—Hard, \$1 25 a 1 37—Spirits Turpentine, 30 cents—Varnish, nominally, 25 cents, no sales—Rosin, \$1 25, nominally, no demand—Pitch scarce, \$2 25—Cotton, upland, 15 a 18 cents—Louisiana, 15 a 20—Alabama, 14 a 16 cents.

MARYLAND TOBACCO—Fine yellow, none—fine cinnamon, none—Good red, \$8 to 12—common do. \$5 to 8—Inferior, \$4 to 4 50—seconds, from \$2 to 8—Actual sales, 5 hds from Benedict, first, \$12; seconds, \$4—3 from Calvert, first, \$3; seconds, \$5—8 hds. Wagon, from Frederick county, first, \$7 50; seconds, \$3 50.

Kentucky, \$3 a 6—Virginia, \$5 a 7, sales.

TO FARMERS.

A single young Man, lately arrived in this country from one of the first agricultural counties in England, wishes to engage as an OVERSEER, or Conductor of a FARM in the state of Maryland, or any adjoining state—he possesses a perfect knowledge of the cultivation of land, the raising and feeding of stock, improving the breed of all kinds of domestic animals, and training such of them as are destined for the various purposes of husbandry. His terms will be moderate, and a respectable reference given as to his character and capability. A line addressed to A. B. and left at this office, will meet prompt attention.

October.

PUBLISHED BY JOHN S. SKINNER.

* The reason of much misapprehension, is that different people cultivate different species of Millet, and some are not aware of the variety—we have seen at least six kinds, and have this year cultivated four, quite unlike each other.

Editor.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua si bona norint
Agricolae." VIRG.

VOL. III.

BALTIMORE, FRIDAY, OCTOBER 12, 1821.

NUM. 29.

AGRICULTURE.

From the London Farmer's Journal.

HOLKHAM GRAND ANNUAL SHEEP-SHEARING MEETING, &c.

It has been usual with us to look to this festival with the most pleasing anticipations, and to contemplate its approach with a keenness of delight and satisfaction, (we hope) in some degree apportioned to the greatness of its utility, and to the exemplary merits and hospitality of its honorable and enlightened founder. But we confess that, on this occasion, our pleasure was damped by the sufferings of those for whose benefit the meetings were established: we could expect to find but a thin assemblage, and those depressed in spirit, and bankrupt in hope, as thou sands of their brethren are in fortune. These feelings were increased by the effects of a most ungenial season, which we feared must have an injurious effect upon the approaching harvest; for, however much the country may be injured by abundance, we apprehend much greater evils from scarcity. We are happy to say, that in this our fears are considerably alleviated by a view of the country: for though, on great breadths of poor land, the crops are good for very little, yet we find that where land is good, or where, though naturally mean, it is well farmed, the crops are pretty generally promising: barley is certainly the shortest in promise; and in low fens, and cold situations, oats are very bad. We need not add that the crops are very late; in the forward instances, the wheat and barley being only just bursting into ear.

FIRST DAY, (MONDAY.)

Contrary to our expectations, an unusually numerous and brilliant assemblage of Mr. Coke's private friends appeared on the lawn about ten o'clock, where a very interesting scene was prepared for their inspection: this consisted of about a dozen little girls with spinning wheels, (decorated with nosegays) and four or five with *Bundies* (for breaking the material) all busied in manufacturing the flax and hemp that grew last year in the park. One female, of an elder description, was employed in dressing the stuff, and specimens of sheeting, sacking, and yarn, (bleached and unbleached) were lying by them. The whole of this has been effected under the superintendence of Mr. Herod, who explained the particulars necessary to the information of the company: sacks ready made, very stout and good, could be afforded for 3s. each, and almost everlasting sheeting, at 1s. 6d. per yard. It is highly pleasing and delightful to consider how much better it must be to bring up the children of the cottagers to useful employment of this sort, than to leave them to barbarity and ignorance, to waste their valuable youthful days in unprofitable idleness, or mischievous sports: the most important school of youth is the school of well regulated industry.

From 10 to 11 o'clock we had the satisfaction to see a numerous field of horses come arrive in the front of the Hall, by the several roads that lead through the park; at which time Mr. Coke mounted his faithful grey, and led his friends and visitors to the great barn, where the shearing was in progress, and several objects of exhibition were arranged. The first was a row of 15 stallions of various descriptions; blood horses; half bred, and those for harness and the plough. We are sorry to say that, in our judgment, the cart horses were not very good, and we fear that the county of Norfolk is not in the way much to im-

prove its breed of this sort of stock; certainly the more is Mr. Coke's merit and wisdom in offering premiums, and we hope to see a corresponding improvement in future. From there the company moved to the piggery, where was a very excellent show of swine of these, and the horses, we shall give lists at the end of this report, in which the premiums will be particularized. Several boars, as extra stock, were exhibited by Mr. Coke, and also four extraordinary fat hogs, about 15 months old, bred between the Neapolitan boar and the Suffolk sow; they were remarkably fat, and of great weight. The exhibition of implements was a short one, several which were expected not having arrived. Mr. John Hempton showed a drill roll, having several improved properties, not easily described: its price, which we understood to be about £35, makes us fear that few of them will be sold in these times. Mr. Torey exhibited a new patent drill, for fixing on a plough beam; it is a very ingenious yet simple machine, and receives its operating motion from the wheel on which the end of the beam rests; we are here again compelled to lament the price at which the machine is offered. Four guineas for a little box, about the size of a salt box, is an enormous charge, which the workmanship within, if it were as intricate as clock-work, could hardly justify. We beg to add, that implement makers, and handicrafts in general, must endeavour to work cheaply, if they expect in future to be paid: what may be the actual cost of making this drill, we do not know; but we apprehend that the patentee must wait the revival of agricultural prosperity before many of them can be used. The rolling harrow was again exhibited, and Mr. Coke informed the company, in the most conclusive and satisfactory manner, that it was proved to be a most useful and effectual implement. This we were very happy to hear; for we have too often experienced the difficulty of clearing the roots of couch from even a well broken tilth; the ordinary operations not bringing them sufficiently to the surface, without more repetitions of ploughing than are otherwise requisite or useful to the soil.

About one o'clock the cavalcade proceeded to Quarles and Egmore, viewing the admirable husbandry and excellent crops which were on either side presented: the only phraseology which is suitable by way of description, is to say that they were as *clean and as good as usual*. Mr. Denny's dairy of Devon cows was much admired, and Mr. Coke particularly called the attention of the company to Mr. Paul's mode of saving round stacks of wheat from vermin, by plastering round the bottom. We have formerly slightly noticed this matter, which may be more particularly described, because it is a mode easily practised. The stack being widened a little from the bottom, is to be closely paired about 24 feet high; and a mortar, prepared with well tempered clay or sand, and a little lime, is plastered on the parcel part, joining the floor, and brought to a smooth surface with the trowel. It sticks in the same manner as it would on a reeded partition, and vermin cannot climb it. Some very fine inoculated pasture was viewed; and some pasturage, on the like soil, from *reseeded grasses*, was finely contrasted therewith. We have heretofore been sufficiently copious in explaining this process, and the true reason of its great success on soils not by nature adapted to good permanent grass; that is, that with the roots transplanted, the very soil goes with them in which they are growing already: with this old and mellow earth, perennial life and vigor are moved with the herb-germ, and transferred to the other field, and you acquire in two years, what it would otherwise take from 20 to 5 years to establish.

The company then passed over to Mr. Hall's farm at Waterden, where they were shown two excellent fields of a variety of wheat, recently introduced into the neighbourhood of Holkham, called *Creeping wheat*, which name is adopted from the quality the wheat possesses of *tiltering* more than any other sort. It is a tall-growing variety, and resembles Talavera in some particulars: it differs, however, in two respects; first, that it is quite a red wheat; and second, late in ripening: the crops of it were very excellent and promising. Returning to the Hall, the company were gratified with the sight of several herds of young Devon cattle, which were remarkably beautiful, and in fine condition.

THE DINNER.

About half past three o'clock the company sat down to dinner, in number about 300. The cloth being drawn, Mr. Coke rose, and addressed some observations to the company, arising out of the times and the occasion. He began by thanking the company for their attendance, congratulating himself on the happiness he felt in seeing so numerous a meeting of Noblemen and Gentlemen, and especially on the honor he enjoyed in the company of the Royal Duke on his left hand: indeed, so great and respectable a meeting he had never witnessed, and among them so many distinguished characters, to whose exertions the country was so much indebted. (*Applause.*) "This meeting (continued Mr. Coke) has existed many years; it was established for the improvement of agriculture, principally, indeed, with a view to the agriculture of Norfolk; but it has extended its influence, I hope, much further, and further than I could ever have hoped or expected. It must be remembered by many here, and by all who have been here, that its purport was what I have stated; and that I have always cautioned my friends against mixing politics with the subjects to which our attention was properly directed, and for which we annually met together. But, gentlemen, I say it now, and with grief I advert to the cause, that this forbearance is at an end. I can no longer attempt to suppress the accents of that deep suffering into which the country is plunged, nor to stop in this place the expression of those complaints which have been heard with so little avail elsewhere. (*Great Applause.*) The country is now brought into such a condition that something must be allowed to that deep affliction with which we are visited, and from which, to look forward, the prospect is one of interminable misery and ruin, without a change of that system which has brought us to our present state. With regard to the efforts made by the agriculturists, and the plan suggested by their petitions, it is well known that I never anticipated any benefit; with this view, as soon as the committee was voted, I went to Mr. Gooch, thinking he might probably put me down. I begged if he had done so, that he would take my name out, as I could not serve on a Committee which were powerless to do good, even if their intentions were sincere. Mr. Gooch gratified me exceedingly, by saying, that he could require but one member for Norfolk, and he had put down my colleague; whom I considered much better adapted to the duties of such a Committee." Mr. Coke then, in his accustomed manner, stated his wish to accommodate every one on the occasion, and hoped that if any neglect was felt or surmised by any one, it must be entirely unintentional, and such might sometimes occur notwithstanding all his efforts, and those of Mr. Blaikie, who was so extremely active and anxious to prevent it. He repeated that every thing in his power was done that could be done by himself, assisted by Mr. Blaikie and his housekeeper.

Mr. Coke ended by giving the toast, as usual, "Constitution and King." The next toast was "The Queen," which was received with a burst of applause, which was several times repeated. Mr. Coke then, with an appropriate eulogium, gave the health of "His Royal Highness the Duke of Sussex," which was received and drank with loud acclamations, which were continued a long time. When his Royal Highness rose to return thanks, the applause was renewed with still greater enthusiasm.

His Royal Highness spoke to the following effect:—"Gentlemen, I beg leave to express my sincere thanks for the very handsome and kind manner in which my health has been drunk, and I may add, in which it has always been received in this country. Wherever independent yeomen are, there I am proud to be; and the testimonies of their regard are ever more dear to my heart. I have but little knowledge in agriculture; but I know something of men, and I value the first for their integrity. In the yeomanry of Norfolk, in the yeomanry of England, I recognise a race of men most worthy of esteem, and dear to my affections; I may add most worthy of support, for they are the sinews and strength of the kingdom. I hope I have just notions on this subject, as it is my pride to belong to a family which has been called to the Crown of this kingdom by the love and free choice of such men; it is my pride to be a member of that family, of which all the members, I am sure, are sensible of the value of such a race, and of the love and homage of honest and independent hearts. I say, Gentlemen, that I understand little of agriculture; but there is one part I understand, and that is the attachment which ought to subsist between the owner and renter of the land: if I have missed learning other parts here, yet here I have learned that at least, by the most practical and effectual lesson that is to be any where found; and, indeed, it puts me in mind, that all solid and useful attachment must be founded on mutual good understanding, good-will, and reciprocal benefits. There is a sentiment, Gentlemen, that does honour to every landlord, and which is frequently uttered in this house—which is, "Live and let live;" it implies an union of moral obligation, which is, indeed, but another way of expressing that Christian principle, *To do as we would be done by*: this takes in a large field indeed, because no situation in life, no sphere of action is removed from its obvious import, nor exempted from its binding force. I cannot help here thinking of the sufferings referred to by my kind host at the head of the table, but I do not think myself qualified to speak of them: that they were relieved must be the ardent wish of every man who can think, feel, or comprehend: that the complaints are uttered without cause, or without urgent cause, it is impossible to believe; therefore, that they should be remedied, is necessary and indispensable. Now, I do not presume to say; but still I think there is stuff enough in us to weather the storm, if it be but sincerely applied and rightly directed: that such may be the case, is the warmest wish of my heart, as it is essential to the existence of that prosperity which is for the safety, honour, and happiness of the kingdom, and due to that most numerous and meritorious race of people whose worth is equal to their sufferings, which admit, I hope, of cure, but scarcely of augmentation. I congratulate them on the perfect and entire impression that has been made to this effect; and I congratulate myself in being here to witness, in the owner of this house, the attachment and gratitude of such people, which is certainly the proudest distinction of an English gentleman. For my part, if ever I should be in danger of forgetting the sentiments which I have hitherto always felt, and frequently uttered, I should think it my duty to come to Norfolk to take lessons on that subject. Gentlemen, I beg once more to return my thanks for the marks of attachment which you have been pleased to bestow on me. I must say they are unbought, for I am sure I have done you individually no service. If any are undeserved, for my desire to merit them is much greater than my power or my performance. But such is my satisfaction in receiving these testimonies, that it exists

in my own esteem, and almost persuades me that I merit your love as much as I am proud of it." His Royal Highness sat down amidst the unbounded acclamations of the company.—And as it would be a bad taste to interlard a speech so affectionate, and delivered with such ease and dignified energy, with making the "praise which accompanied its sentiments, so we leave it to our readers to conceive (which is not difficult) where, and how much the several parts were applauded.

Mr. Coke rose, on the intimation of such a prompter, and gave "Live and let live," which was drunk with great applause.

His Royal Highness then rose, and said,—It need not be observed that the sentiment put him, and all the company, in mind of the man. In hearing such a wise, liberal, and humane sentiment, it naturally put them in mind of the person who gave it. His Royal Highness then pronounced a most admirable and judicious eulogium upon the worth of such a character, and tendency of his precepts and his conduct to promote the most useful effects in industry and morals; where the happiness and prosperity, the comfort and independence of a tenantry and people were the prime objects of those under whose influence they were fostered, there the affections were unfolded, and all the good feelings of the heart were brought in aid of moral obligation. Where industry prospered, and was duly encouraged, the picture of humanity was delightful: were the plough was honoured before the spear, and where instead of swords we used sickles, it was a state of society not only good for this country, but for the world at large; and it was a sentiment which could not but be reciprocated by the foreigners who attend the meeting, and would go a great way (and this was one of the best effects of it) to harmonize the mutual good will of nations, and disarm at once their prejudices and their animosity. "Among others, I notice here (said his Royal Highness) an American gentleman, and it gives me an opportunity to remark, that as President of the Society of Arts, I have frequently met with some of the most useful and ingenious inventions, as coming from the people of that country, and have frequently given medals which was due to their merit. This I say with the more pleasure, because it is a sentiment the most grateful to my feelings, to encourage that friendship and good-will between this country and that, which is to the honour as well as the interest of both. I will now give the health of Mr. Coke, with honour, prosperity, and long life:—that he may continue to add to the good he has produced by these meetings, and by his virtuous and amiable conduct wherever the sphere of his influence (which is not small) extends. May he long enjoy that happiness which only such worth can bestow; and, in the end, arrive at that which we all hope for, but which only such virtues can ensure."—The toast was received and drunk, after this solemn invocation, with more than the usual tokens of reverence and attachment.

Mr. Coke returned thanks in the most feeling manner, but very succinctly, as on these occasions his good taste always dictates. He then proceeded to address the company on the agricultural state of the country, and the ruined condition of the land and farming interests, declaring that he was almost heart-broken at the consequences which he witnessed, and which he was sorry to say there was no attempt to mitigate, and which there did not appear to be any disposition to relieve. "I have said, Gentlemen, (continued Mr. Coke,) that this is not the place to talk on political subjects: that I have always felt the propriety of this forbearance, but that this duty is at an end, and I now throw it from me as an useless, pernicious flattery, to the system that destroys us. The time is come when we must speak—for to hold our tongue is impossible; to submit, and to suffer in silence, is to invite ruin, and to welcome the tortures which it is no heroism to bear,—but grief only, mingled neither with the pride of our nature, nor the consolation of our duty. The state into which we have long been advancing, it is well known that I have done my utmost to avert: the gradual encroachments of corruption, I have viewed with shame and sorrow

—with shame for my country, and sorrow for its people; but with indignation for myself, and with certain foreknowledge of its eventual effects. The consummation has now arrived; the end has come, so often predicted, and the ruin has overtaken us; to avert which no warnings were believed, no admonitions listened to. Even now, what steps are taken, or what efforts are made to meet this tide of disaster, or stem the torrent that overwhelms us? Let me not copy the fallacious and evasive conduct which I see practised by those who ought to remedy these evils; let me not deceive you gentlemen, with stating palliatives and delusive hopes, which cannot, I am sure, for one moment be believed even by the simplicity and ingenuousness of youth itself. No, rather I will say, that dire taxation which grinds us to the dust, has been made the engine to despoil us at once of liberty and subsistence: so long as that continues our sufferings can never end; all other modes of remedying our evils, or enabling us to support them, are utterly without hope; they but prolong our torture, and suspend us in miserable and fruitless expectation. But the time is pressing and I see around me Gentlemen who are much better qualified to speak to this point; let me advert, however, for a moment to the Report of the Committee who were appointed to consider and inquire into the agricultural distresses: that report was purposely delayed, and has been artfully and ungenerously drawn up to deceive those to whose benefit it purported to be directed; it is plain that nothing can arise out of it, and that precisely because nothing was intended; so after years of planning and waiting, and hoping and being deceived, we have been progressing in ruin and suffering, which is only the more irremediable. Well then, we can no longer conceal our feelings; it is time to speak, and speak plain, that we may be roused at least to a sense of our situation, and be conscious to what it is that we owe our misfortunes."—Mr. Coke here evidently spoke under very painful feelings, and after a momentary pause, hastened to introduce the toast he was about to propose, by adverting to the husbandry of Kent. That county, he said, had been called the garden of England; whether the epithet was complimentary or not, he did not know; but they certainly grew abundant of gooseberries and nuts, and sent them to the London market, so that so far the county was literally a garden (laughter). He could not envy the county of Kent such a distinction; but by way of contrast he would call Norfolk the granary of England, which some might think a greater praise. He then adverted to the excellent talents and character of the Member for Kent, Mr. Homewood, whose health he was about to propose, but recalled for a moment the former subject, and said, he could not omit to mention the repeal of the Agricultural Horse Tax; he was sorry that Mr. Curwen (of whose talents and public services he thought very highly) should be weak enough to complement Ministers with granting a boon to the country in the repeal of this tax; it was a boon bestowed, not by Ministers, but by the growing good sense of Parliament, and particularly by the conviction of the landed interest, that they had all along been sacrificed without moderation and without mercy. The tax was forced from Ministers by a power with which it is impossible even for them to contend, and which is now, I hope, likely to be effectually roused to a sense of their own danger. By the procedure, and his only, will the Ministry be forced to "turn round and undo what they have been so long doing, if it be yet in their power." "Mr. Homewood," with three times three, which was drunk with great applause.

[To be continued.]

Sketches on Practical Agriculture.

BY JOSHUA TYSON.

(Continued from page 220, vol. 3.)

Of Turnips.—I have generally been successful in raising this crop, but have seldom raised many, but with a view of improving, at the same

time, the meadow grounds. The ground should be broken up early in the spring and limed, from thirty to thirty-five bushels per acre, and twice fallow ploughed by the first day of August, so as to have the sod rotted and the ground completely ameliorated; and then put on from fifteen to twenty cart loads of well rotted dung per acre. The dung should be ploughed in very shallow. This last operation of ploughing should be done between the 10th and 15th of August. Three half gills of turnip seed, one of radish seed, and four quarts of timothy seed, well mixed together, I have found a sufficient quantity of seed per acre: just before the seed is sown the ground should be smoothly harrowed. The seed should be brushed in with what I call a brush harrow, prepared in this manner—take a pole ten or fifteen feet long, about the size of a common rail, and to it tie, or withe, at suitable distances, branches cut from the trees, so as to make a pretty broad and compact brush; on the top of this tie another pole of the same length, so as to keep the different branches in their proper places: with this go carefully over the ground, and it will most completely cover the seed and leave the surface fine and smooth. When the turnips are just up, mix plaster and wood ashes together, and sow it over the ground, one bushel of plaster and three or four of ashes per acre. This last act, I consider of use in preventing the destruction so frequently committed by the fly, as well as in affording proper nourishment for the young plants. When the above process throughout has been carefully attended to, I have never yet failed of having a good crop of turnips, and the succeeding season a great crop of timothy hay. The crop of turnips and timothy has always been much more valuable than the best crop of wheat; and the time, labour, and manure, no more than following for a crop of wheat. All the English writers on agriculture that I have read, (which by-the-by has not been very many) extol the value and virtue of the turnip in feeding cattle and sheep. Beyond any thing my experience has met with; and yet I think them of more value than farmers in this country allow them to be; and well worth the attention of cultivators. Turnips cut small and mixed with Indian meal, are excellent food for store sheep, and particularly good for ewes that have lambs. I have never discovered any great fattening quality in turnips; they are, however, mixed with Indian meal as above, excellent food for cows that give milk. The soil and climate of England being moist and cool, certainly is more congenial to the growth of this plant than any of our middle or southern states, and I have not a doubt the English contains more nutriment than the American turnip.

The Ruta Baga, or Russian Turnip, after all Cobbett's puffing and blowing, I do not believe will be introduced into this country with any great success: our seasons are too short, too dry, to favour its growth. I have sown the ruta-baga with our common turnip: the common turnip was four fold the best crop. From this small experiment I do not draw my conclusions against the success of the Russian turnip, but from various other sources; an ex-

planation of which would require more time than I have at present to bestow on the subject.

Of Cabbage.—Cabbage, from the experience that I have had, I am induced to believe, deserves more attention from the agriculturist, than has hitherto been given it. It most certainly is, in the fall and winter seasons, an excellent food for milk cows, store hogs, and sheep. I have raised at the rate of from twelve to thirteen tons per acre: but the English writers say they can raise from twenty-five to thirty tons per acre. I wish to make some more actual experiments of the growth and value of this vegetable, so as to enable me to speak with more precision.

Of the Mangel Wurtzel, or large beet, I have had some experience, and think them excellent food for cows and sheep, and well worth more particular attention.

Of the Parsnip.—I think this one of the most nutritious roots that grows, next to the potato, and, indeed, if fed raw to cows, certainly preferable. I wish to make some further experiments of the value and virtue of this root.

Of Horses.—The farmer ought not to pay as much attention to the elegance of his horses, as to their strength and durability. An elegant horse worth one hundred and fifty dollars, will not perform more actual service to the farmer, than one that would cost but sixty or eighty dollars. Many farmers, through pride, (I know not what else to call it) have more capital employed in this way than is necessary; and at the same time not money enough to purchase cattle and stock of other kinds, to proportion their farms to the best advantage. The manner of feeding and working horses are subjects of much interest to the farmer; a headlong, ignorant fellow, will waste more grain in feeding the horses, than all his services are worth. This is too frequently the case. It becomes, therefore, highly the interest and duty of the farmer to pay attention to these subjects.

My manner of feeding horses in the winter season has generally been this:—I have them mowed in the morning of each day with cut oats from the sheaf, with about two quarts of meal of rye or oats and Indian corn ground together, for each horse; this, with a moderate proportion of hay, will keep horses that are not at work in most excellent order. This plan I think as cheap as feeding hay only, and much preferable. The horses ought to be carried once a day, the stables kept clean and well littered. In working of horses great care ought to be taken not to overload, or to drive too fast. There is a foolish pride or ambition with most of those men we employ to manage our horses, on the farm, or in the team, of overloading, whipping, and straining every nerve of the poor animals; and then vainly boasting of the strength of the injured brutes. This kind of conduct is very reprehensible, and little less cruel than the infamous Inquisition of St. Bernard.

Of Work Cattle.—It certainly is a mistaken notion with most of our farmers, that they do not use more oxen to perform the drudgery on their farms, and less number of horses. A yoke of good tractable oxen, I am confident, may do a saving of fifty dollars a year to the farmer.

Of Stall-feeding Cattle.—After the month of July, as soon as convenience will permit, purchase what cattle you intend for the stalls, or winter feeding; be careful to select handsome, thrifty bullocks, between the ages of six and eight years old. Let them run to pasture as long as there is sufficient grass to keep them in a thriving state. After the season of pasturing is past, they should be put into the stalls, fed with good hay, and each ox about six quarts of short feed, composed of equal quantities of oats or shorts and corn, per day: this should be given to the cattle dry, three quarts in the morning and three in the evening. The stable should be well littered and cleaned, at least twice a week. After the 1st of January, the quantity of short feed should be increased to eight quarts for each ox, per day, and fed on the best hay. If any of the cattle should not appear to thrive equal with the rest, a few quarts of potatoes, given in addition to the usual quantity of food, has a very good effect. In this month or beginning of February, the cattle will begin to cast their coats; this may be facilitated by mixing a small quantity of flax seed among their feed, or having it ground among their feed. From this time the cattle should be carried and cleaned at least every other day. Great care should be taken not to stall them, at any time, with their food, for if this happens, it generally requires a considerable time before they gain their usual appetite. They should be turned out of their stalls for five or six hours every day, to give them an opportunity to get drink, and stretch their limbs. If your cattle do not appear to thrive as fast as you could wish, you may increase the quantity of short feed to ten quarts per day, if they eat it with good appetite. With this course of management, regularly and attentively pursued, your cattle will be fit for the market by the first of April.

Of Summer-feeding Cattle.—In the month of November or beginning of December, just as convenience and circumstances best permit, buy as many young bullocks, from three to six years of age, as you have straw, stocks, and rough hay, to carry through the winter. In the spring they should be fed before going to grass, on pretty good hay, for a month or more. If you have any rough meadow bottoms, get the cattle to pasture as early as possible. As soon in the month of May as your clover pasture will afford a good supply of grass, the cattle should be turned in. Be careful to salt your cattle twice or three times a week. Reserve your best pasture fields until the month of June. After your first crop of hay is cut, be careful to change the cattle pretty often from field to field; the changing is of much use, for they seem to feed and thrive better by this mode than if they are kept long on the same field. If your pasture has been good, some of your bullocks will be fit for the butcher in the month of July. As fast as they are fattened sell them off, and replace them with a second stock; but by all means be careful not to overstock. It is of great injury to your pasture fields to be eaten down very low.

(To be continued.)

For the American Farmer.

"A calender, a calender! look in the almanack;
find out moonshine, find out moonshine."

SHAKESPEARE.

Meredith Hill, October 9th, 1821.

SIR—It is not my purpose now to occupy much of your time, or your paper. I shall be as brief as circumstances will allow. I have advanced opinions founded more on the experience of others, than on that of my own, as to the influence of the moon on Vegetation—these opinions have not only been doubted, but have been considered "visionary", and founded on prejudice which ought to exist no longer in this country. Nay some go so far as to assert, that because an influence is ascribed to the moon, none other but a "malignant" influence is meant!

Having expressed my belief in this lunar influence, I owe it to myself and to the public, that I should shew on what it is founded; and I hope to convince your readers that the opinion is not taken up lightly—nor is it without good foundation. Let it be clearly understood, however, at the outset, that all I mean to prove is the existence of an influence—the nature of this influence, whether beneficial or malignant—and (if either or both) the particular period at which it is exercised with most effect, I leave to others. My object is only to prove that the opinion of this influence, sanctioned by the most learned of all ages, is entitled to some consideration; for I have no where asserted, that the beneficial or deleterious influence is confined to either the full or the dark of the moon; and whatever influence on the sap, I have ascribed to attraction, was considered relatively to its influence on the tides, and was limited to the periods of that influence.

As regards the influence of the moon on animal creation, I have but a word to say—the subject is a delicate one for investigation; but I have been informed by physicians, and others better qualified than even physicians to decide, that our own species are under the influence of the moon, and that this influence manifests itself in a manner, to put the thing beyond all doubt. The very term applied to the evidence of this influence is the "proof" of the opinion of medical men, to which an appeal has been made by one of your correspondents. It also may be a prejudice—if so, it is one sanctioned by great antiquity, and by the opinion, not only of those affected by that influence, but of most medical men. Old opinions like old adages, are valuable for standing the test of time; and there are none which have come down to us through a longer line of years, than the opinion of this lunar influence.

But laying aside ancient opinions; abandoning altogether established prejudices, and depending upon what is familiar to every man, woman and child in the community, I will pledge myself to prove that the moon, if you will only allow it affords light, has an influence, and a powerful influence too, on vegetation.

Whether "root of Hemlock, digg'd 't the dark," is more poisonous than if dug in the light, is little to the purpose, if I prove that light, or the absence of light, produces the slightest change in any vegetable production whatever, my purpose is effected. Nature acting as I have somewhere before said, using the words of the Poet, by "general and not by partial laws"—and this remark will as well apply to the animal as to the vegetable creation, in reference to lunar influence.

Among the first commands of the great origin of all things, before even order was created from chaos, was that there should be light; after which grass and herbs, yielding seed, and the trees yielding fruit according to their kind, were formed—the sun was commanded to rule by day, and the moon by night; and the prophet Isaiah, saith that "the light of the moon should be as the light of the sun." Light, then, from the earliest ages has been considered a quality or element, distinct from all others; acting independently, and exercising a direct influence on every thing. It acts in proportion to its quantity; and the sun, the great fountain of light, independent of heat,

exercises an influence on vegetation, that none can doubt.

Wherever his rays are excluded, vegetables assume a pallid, sickly appearance: and in time perish for want of that property whatever it is, which is imparted to them by their direct operation. Grass near the roots is less green than near the tops of the blades: the bleaching of Endive and Celery, by the exclusion of the rays of the sun, is familiar to every one, and in the least degree conversant with horticulture, or agriculture, know well that the lively green of all vegetables is obtained by an exposure to, and absence of this verdure, is occasioned by screening them from the light. Temperature has nothing to do with it—for the same effect is made manifest in the heat of a stove room, as in the heat of a garden.

An exposure to the light, or a seclusion from it, alone, under all circumstances of vegetating heat, is sufficient to produce the effect; and whether the light proceed direct from the sun, or be borrowed from him by the moon, and reflected on the plant, the effect is the same; light is light, "and the light of the moon shall be as the light of sun." Nay, whether it be the light of the sun, of the moon, of a torch, or of a glow worm, provided it is in equal quantities, the effect on vegetables is the same.

This I am to prove by facts—a few shall suffice.

The heat of the sun cannot penetrate the snow; but its rays of light pass through it—under the snow the grass is green. Cover the grass with any opaque substance, through which the rays of light cannot penetrate, but through which the heat may pass, and the grass becomes a sickly yellow. Light, therefore, and not the heat of the sun, gives verdure to the grass.

A sensitive plant confined in a dark place, will close its leaves, but on illuminating the chamber with lamps, they will again expand. This experiment has often been made, and particularly by Decandolle. Torch light, therefore, produces the same effect, as the light of the sun; and it is ascertained that all plants are under the same influence, that is, they hang and close their leaves when the light is absent, and expand them again when its rays have returned.

An ivy with the light shining on it, placed near a dark substance, will recede from the light, and will approach and cling to the dark substance; whether this be a wall or a piece of black cloth or black paper; place it opposite to a mirror that shall reflect on its rays of light, and it will recede from the mirror—thus it appears that reflected light has the same effect on vegetables, as the rays of the sun. I will here remark that all plants and vegetables depending on themselves for support, incline toward the light; and those whose feebleness requires support, recede from it—hence the reason of their seeking opaque substances as if conscious of their own weakness. Whether this arises from the difference in the diameter of the stalk in the two cases, which enables the smaller plant to receive the light more equally on all sides, and subjects the other to a contraction of the side exposed to the light, which draws it out of its perpendicular line, I am unable to say, but this is certain, that all plants project the greater number of their limbs to the side affording the greatest light, and expose their leaves to receive it to the greatest advantage. And the tendrils of Vines vary their position at every period of the day, returning at night to occupy the same situation they had occupied in the morning. I would also notice the sun flower, but this might be called prejudice—light is their moving principle, and appears necessary to their existence as air to the animal creation.

The antipathy, as it is called, of plants, is nothing more than a seeking of light. Place many poplars, or other trees in a circle, and the tops will incline outwards. If I mistake not this disposition, both of the vine and the tree, and the consequent disease of obscured limbs, is very perceptible in the yard, and at the back of the house of your next door neighbour.

"Branches exposed to the light, are thereby enabled to attract to themselves a larger portion of the ascending sap, which they employ in leaves and vigorous annual shoots, while the shadowed branches become languid and unhealthy."

These facts are familiar to every one or may be made so; and it has been observed by a distinguished experimentalist, that "if the operation of light gives sap to the expanded branch to attract the ascending current of sap, it appears not improbable that the operation of proper food and moisture in the soil, upon the bark of the roots, may give ability to that organ, to attract and employ the descending current of sap." Sap, as I have before shewn, ascending by the inner or wood vessels, and descending by those of the bark.

Chymists account for the condition of plants exposed to, or screened from the light as follows:

"Plants exposed to the light, have been found to produce oxygen gas in an elastic medium, and in water containing no carbonic acid gas; but in quantities much smaller than when carbonic acid gas was present."

"In the dark no oxygen gas is produced by plants, whatever be the elastic medium to which they are exposed; and no carbonic acid absorbed. In most cases on the contrary, oxygen gas, if it be present, is absorbed and carbonic acid gas is produced."

"In the changes that take place in the composition of the organized parts, it is believed that saccharine compounds are formed principally during the absence of light; gum, woody fibre, oils, and resins during its presence—and the evolution of carbonic acid gas, or its formation during the absence of light, may be necessary to give greater solubility to certain compounds in the plant. "Once suspected" (says Sir Humphrey Davy) "that all the carbonic acid gas produced by plants in the night might be owing to the decay of some part of the leaf or epidermis; but the recent experiments of Doctor Ellis, are opposed to this idea; and I found that a perfectly healthy plant of celery, placed in a given portion of air for a few hours only, occasioned a production of carbonic acid gas, and an absorption of oxygen gas."

In one of my former communications I stated that chymistry could be brought forward in support of my opinion of lunar influence, or the influence of light on vegetation; and I resort to it now, to shew that the assertion was not made lightly, nor without good authority.

What is light? Lexicographers define it to be, that quality or action of the transparent medium by which we see. Bright, clear; not dark, tending to whiteness. The philosopher who had become blind in contemplating the sun, and who had exhausted all the methods which optics, chymistry and even necromancy can supply, to shut up one of his rays in a bottle, defined light to be *nothing at all*. "It is not a fluid, said he, for it cannot be agitated by the wind; it is not a solid, for the parts of it cannot be separated; it is not a fire, for it is not extinguishable in water; it is not a spirit, as it is visible; it is not a body, for we cannot handle it; it is not even a moving power, for it agitates not the slightest bodies; it is therefore (exclaims he) "nothing at all."

The Negro who knew that light proceeded equally from the sun and his lamp; and that the rising and setting of the one, was commencement and termination of his labours, and that the other supplied his absence—knew more of the practical utility of both, than his master—to him they were equally useful. The light of the sun, says the Negro, interests me less than that of his lamp, which he had made of the shell of a Cocoa nut, for without it I should not be able to serve you during the night. The Negro viewed it as a quality, which he could create at pleasure, and apply to his own convenience. To this quality Chymists ascribe certain properties; and I have shewn that, whether it be derived in mediately from the sun, the source of light, or be borrowed therefrom by means of a reflector, be it a mirror or the moon—or obtained by artificial means, like the Negro's lamp, its properties are the same. Its operations are silent and constant—not tangible, yet perceptible—not susceptible of demonstration or explanation, and yet its influence is satisfactory to our minds.

Who can demonstrate why the magnet inclines to the pole? why it varies from it? why this variation is subject to an annual variation? We may calculate all these phenomena with tolerable precision—we may reason on them—but who can explain them? So

of the variation in the inclination of the Earth's axis. We know the fact and we are ignorant of the cause. Philosophy may reason on it, but human knowledge is confined within certain limits, and it is in vain for man to endeavour to transcend them.

"Aspiring to be Gods, if Angels fell,"

"Aspiring to be Angels, men rebel."

It is scarcely necessary that I should make any further applications of what precedes, to the point at issue; the enquiry will natural y, will the full light of the moon, or the absence thereof, produce an influence on plants? Will several weeks of constant light shining forth on the vegetable kingdom, the sun ruling by day and the moon ruling by night; or will the absence of one of these luminaries, thereby leaving the plant in obscurity, have any effect on it?

Light it is agreed, is necessary for the existence of most plants, and without it they must perish.

The light of the sun shining for twelve hours in the four and twenty, gives health and verdure; the light of the moon for twelve hours more, must produce an effect proportioned to the amount of light supplied, and if the effect be healthful, the period of the decline of the moon for felling it, after the plant has enjoyed the full power of its light, must be the most favorable one to its durability.

The facts stated, would seem to confirm the opinion that when the leaves of vegetables, [called by some their lungs] perform their healthy functions, they tend to purify the atmosphere on the different variations and changes from light to darkness; and if so, there is another argument in favor of the influence which the moon exercises on animal creation, through the medium of the atmosphere, which must be more or less suited to respiration and health, in proportion to the greater or lesser quantity of oxygen it may contain.

I will close this communication with a quotation from my letter of the 10th of August last—and I make it to show that the remarks this letter contains are consistent with what I there advanced.

"Thus 'Vitruvius' method of felling timber in the 'winter season', is practised, and his recommendation to cut it 'on the decrease of the moon' is also worthy of attention. It is hard, however to persuade mankind that light, which cannot enter an opaque substance, can have an influence on trees. We should not, however, forget the innumerable experiments which have been made to prove, that it is to light they owe their verdure, and whatever may be the *modus operandi*, we cannot doubt, from daily experience, that light is as important as heat to the perfection of the vegetable world. Whether the presence or the absence of the moon, is most beneficial, is not the question—but only, what period of the moon is most proper for cutting timber."

With sincere esteem, your obedient servant,

D. PORTER.

J. S. Skinner, Esq.

The following communication is the result of a request for information about Davis's ploughs, made by "A SUBSCRIBER" dated Culpepper Court House, August 11th, 1825. Davis's Shovel ploughs have been much used by the Editor this summer and are much approved, as being well adapted to ploughing between drill crops and will answer equally well for Corn, Tobacco, &c.

[Editor Farmer.]

FOR THE AMERICAN FARMER.

The Horse and Plough.

Respected Friend John S. Skinner,

I trust I will excuse my delay, in giving this communication, when informed that it was not through design, or neglect, but occasional, in order to obtain the most correct information I could get, relative to these subjects I had in view.

I apprehend there is no other subject, with which the husbandmen are so intimate, of which they have so imperfect a knowledge as that, of the strength of a Horse. From conversations I have had with different

men on that subject, I have reason to believe, that in common, the strength of the Horse is very much overrated. "General Beaton, an English author, a man of great practical knowledge relative to the art of husbandry, says, that Emerson affirms, that a man of ordinary strength can act a whole day against a resistance of thirty pounds. The strength of a horse is generally allowed to be equal to that of five or six men" so that about 165 pounds would be a proper draught for a horse. But where is the man that could believe this without much reflection or testing the fact; I confess I could not. Most men in estimating the strength of the horse calculate thus: that four horses are able to draw a wagon and as much load as will weigh 4000 pounds, of course each horse draws 1000 pounds; but just suppose the wagon was fixed on an inclined plain of 45 degrees elevation, then the plain would sustain half the weight, so that each horse has only 500 pounds to operate against, except as much more as might be necessary to overcome the friction and give motion. But the fact is that a horse cannot walk up an inclination of 45 degrees, much more draw 500 pounds. Experience has taught me that it is very hard work for four horses to draw a wagon, and as much load as will weigh 4600 pounds up an inclination of 15 degrees, which is only the one sixth part of a perpendicular lift, of course each horse has but the one sixth part of 1000 pounds to operate against about 167 pounds and as much more as might be necessary to overcome the friction and give motion, which I suppose would bring the draught of each horse up to about 180 pounds, which from observations and testing the fact by an accurate instrument (called the Dynamometer) I know to be a heavy draught for a horse to operate against all day, and that it would be found rather more than what a horse of common size would be able to do. I believe that for a constant draught 150 pounds would be found enough for a good horse. I presume that when the husbandmen come to have a proper understanding of the strength of the animal power by which they are to propel their implements, in performing the various operations necessary, that they will then and not until then be persuaded to pay some attention to some valuable improvements that are made and making, which at present are but very little attended to.

Of all the implements used in cultivating the soil, the Plough is by far the most valuable, the most efficient and most expensive to operate with, of course needs the most attention in the selection. But different neighborhoods have their favorite ploughs, each hold theirs to be the best, and in many instances without being able to assign a reason why they prefer such a plough to another, only that they have got in the habit of using them—have become naturalized to them, and really believe them to be the best in the world or of course they would use some other, for it is a rule that men cannot alter, that so long as they are of the opinion that their implements are of the best kind, they are satisfied with them no matter how inefficient, but as soon as they become convinced that there is a better, or that those they have might be improved, they become dissatisfied with them, no matter how well they may have answered the purpose. And to obtain a real good plough such as will run easy to the team, easy to the ploughman, and easy kept in repair, is a subject so desirable, not only to the owner or employer, but even to the ploughman though he be an hireling or a slave, that it seems to be a subject of much more than common interest, and yet many of the husbandmen pay so little attention to this subject, that they buy the first they find, or look after such as can be had for the smallest price.

With regard to the history of the plough, who it was that first made or introduced it, and where, it matters not at present, we know that latterly there has been many improvements made on the plough, and certainly there has been much pains taken to make it operate in the most perfect manner, but I apprehend there has not been due attention paid to one very important point, that is, the power necessary to propel it; the reason of this suggestion is, that from experience I have found that there is a very material difference in the draft. I have observed in the 3d volume

of the American Farmer, page 38, in an address delivered by R. Sullivan at a meeting of the Massachusetts Agricultural Society; he states the necessity of introducing ploughs and other implements superior to those now commonly used, and then goes on to say, "that it has been ascertained by an accurate instrument adapted to the purpose, that there is a difference in ploughs of the same size and weight in regard to the power required for the draft, amounting to from two to six hundred per cent. & that it is doubted whether the knowledge of such a difference or indeed any, is known generally to our husbandmen, or whether it has usually been considered in the purchase of the implement, that every farmer complains of the expense of labor, &c."

For upwards of twenty years past, I have been more or less engaged in ploughing, plough making, and endeavoring to improve the plough, and in effecting my operations I have endeavored to obtain a perfect understanding of the different forms and operations of the plough. Among those that have endeavored to improve the plough I perceive, that the principal aim has been to form the moulding part, so as to turn the furrow in the most perfect manner, for which purpose they have made the mould board of the curvilinear form, making it more or less a twist according to what their fancy might dictate, combining (as they say) the power of the wedge and the screw. It does seem very natural to be sure, that the face of the mould board should be made twisting, in order to operate or turn a furrow in the most perfect manner, but when realized it will be found that the idea is entirely incorrect. Perhaps the easiest and most familiar way of illustrating this subject, may be to propose to those who may feel themselves interested, just to open a book and take hold of one corner of a single leaf or any number of leaves with a disposition of turning it or them over, and observe what shape would come nearest fitting the underside; no doubt it will be found that a section of a cylinder of a proper radius will fit it exactly. By this simple process it may be seen at once, that there is no twist needed in the form of the mould board, yet I have found from experience that it is necessary to make the fore part rather concave, and the lower part behind rather convex, in order to make it work in the most perfect manner, that is to secure on all parts in the most exact manner—after having adopted this plan for the shape of the moulding part, together with several other improvements which I have made, and seeing them operate, I became satisfied that my ploughs worked much easier than any I had ever seen operate—many that had used them being of the same opinion—some said there was as much as fifty per cent difference in the draft between them and those ploughs that are in common use in this part of the country, and much reputed by many. With a desire to know for myself, and to gratify others, I have been at some expense and much pains to ascertain the fact, in order to do which I procured a very accurate instrument adapted to the purpose, and a ten inch plough of each kind most celebrated in this part of the country, say one of the Peacock, and one of Wood's patent, one of the Freeborn ploughs, and one of my own, all of which I had put in the best order I knew how, and after having tested them to my full satisfaction and even much to my astonishment, at finding the difference in the draft so much more than I expected; I then selected a suitable situation and submitted the process to a number of farmers and others who interested themselves, whose report is hereunto subjoined. There was a wheel fixed under the beam of each plough which regulated the depth exactly, and the width of the furrows was carefully laid off by actual measurement, the following is their certificate.

These are to Certify, that we the undersigned citizens of Montgomery county, state of Maryland, this day met on Bernard Gulpen's farm in said county, attended to, and carefully inspected, the drafts of the three following ploughs (tested by an accurate instrument adapted to the purpose called the Dynamometer) in cutting a furrow five inches deep and twelve wide. The result was as follows:

1st. A ten inch Peacock plough made by Matthew Murray of Hagerstown, Maryland, required a force of 333 pounds.

2d. Woods' patent (No. 2) a ten inch plough with cast iron edge, required a force of 380 pounds.

3d. A ten inch plough, improved and made by Gideon Davis of Georgetown, District of Columbia, required a force of 237½ pounds.

We are of the opinion that the above ploughs were good of their kinds, in good order and performed well 9th month, 18th day, 1821.

Signed—Roger Brooke, David Frame, Ignatius Walters, Joseph De Laplane, Bernard Gilpen, Basil Crooke, William Thomas, George Janney, Whittson Canby, Edward Stabler, Jun. Joseph Canby, Even Gaither, Thomas L. Reese, James Farr, James Frame, Jonathan Milburn.

There was a number more present that were willing to sign the above, but it was deemed unnecessary.

It will be seen that the difference in the operation of the above ploughs is as follows: 1st. The Peacock plough operates about 14 per cent. easier than the Woods' patent or the Freeborn plough. 2d. The plough improved and made by G. Davis, operates about 40 per cent. easier than the Peacock, and 60 per cent. easier than the Woods' plough.

I have no doubt that this subject will excite as much attention from the agricultural part of the community into whose hands it may come, as any other that could be laid before them; and I presume that the result of these experiments will be questioned by almost every individual; yet I believe that very few, if any, will be more surprised at the result than I have been, though from my own observation I had become convinced that there was a material difference in the draught of the different kind of ploughs, and even such as are much reputed; but I had no expectation of finding half so much, though I had been told frequently by different men who had used my ploughs (as will be seen) that there was as much as 50 per cent. difference in the operation of my ploughs and those in common use, yet I could not think it possible, but from the attention that I have lately given this subject, and the experiments I have made, I now have no doubt of the fact (and have no doubt but that the ploughs that I now make will operate more than 30 per cent. easier than those I formerly made, though they were, and are yet in very high repute to a considerable extent.)

The following extracts and certificates will serve to show the opinion of those who had used my improved plough.

February 14, 1821.

Friend Davis,

The two ploughs which I purchased of you in September last went into operation shortly after. I have thrown over nearly one hundred acres of land with them—they far surpass my most sanguine expectations. They have been tested in rough stony lands as well as in strong clover lands and in both instances perform well. At first sight I expressed strong doubts that they would not stand the shocks that is to be met with in our rough country, but these doubts are put at rest not having lost a single point by breaking—they cluck less in clover or stubble lands than any plough I have ever tried, and I am convinced they run one third lighter than any plough I have ever had on my farm.

Yours Respectfully,

JOHN WAILES,
of Montgomery county, Md.

Perrywood, May 22, 1821.

Sir,

I have made an experiment with your improved barshare plough, and have no hesitation in giving it as my opinion that it is infinitely less draught than any other I have ever used, and particularly adapted to the preparation of land where there is much litter, such as stubble, &c.

I am sir yours,

CLEMENT BROOKE,
of Prince George's county, Md.

Mr. GIDEON DAVIS.

Forrest Lodge, 12th June, 1821.—(Extracted.)

ESTEEMED FRIEND,

I commenced the use of the barshare plough purchased of you early last fall, and was much pleased with its operation on light land, but on heavy land with tough sward, the slice was left a little too much on edge. This spring it has fallen at least one hundred acres, and the more I use it the better I like it. For the last 15 years I have had ploughs from the best mechanics of Frederick, Brookville and Baltimore and must say it is the best I ever had for strength, permanence, and operation. I have had also a sufficient trial of the Adjusting Shovel Plough purchased of you at the same time, and have no hesitation in saying it is an admirable plough for the culture of Maize and Tobacco

Yours very respectfully,

CHARLES S. SMITH.

GIDEON DAVIS.

Springfield, Montgomery county, Md. Sept. 1, 1821

These are to certify, that I have used one of Gideon Davis's improved ploughs—am much pleased with its performance—find it very easy kept in order, and am of the opinion that it runs fifty per cent. easier than those I have been in the habit of using. Also, that I have used one of his Adjusting Shovel Ploughs and am of the opinion that it is without exception the best implement I have ever used in the cultivation of summer crops, and well adapted for seeding.

SAMUEL BUSEY.

One advantage in using these ploughs is, that they will turn a wider furrow than the common ploughs do. In stocking, my ploughs are put together without mortice or tenon but with iron screw bolts, and by those that use and see them they are said to be stronger, handsomer, and easier kept in repair than those in common use. I carry on the manufacturing of these ploughs of various sizes, together with the Adjusting Shovel Plough, Straw Cutters, &c. in Georgetown, District of Columbia, where orders will be gladly received and strictly attended to by

GIDEON DAVIS, Manufacturer.

9th month, 22d day, 1821.

* An alteration has now been made which renders it perfect.

SECOND REPORT OF THE COMMITTEE ON MANURES.—July meeting, 1819.

The Committee on Manures, in continuation of the report submitted to the Society in July last, having therein treated of three divisions of their subject, animal, vegetable, and compound manures, proceed to the consideration of the fourth division, fossil manures: and will conclude with some observations relative to the time and mode of application of manures, to the soil.

Your committee are not acquainted with any fossils to be found in this district, which in their natural state have been used as manures, but they are inclined to believe, that marble, or some earth resembling marble in its effects, may be found. It is believed we have neither gypsum or limestone, but at the same time proper searches have not been made. It is here recommended to offer a handsome premium for the discovery of any substances, which actual experiment may prove to be beneficial. A judicious mixture of soils of different qualities, would doubtless be of great service. A tenacious clay is opened by the application of sand, and a porous open soil, is improved by the addition of clay; but the labour of this admixture would be very great, and the fertility communicated to the soil, not equal to our ideas of

improvement by a system of manures. Gypsum may be procured at a high price, and some few experiments have been made with it, but they have not succeeded, though it is probable the plaster had lost most of its good qualities, from having been ground for a long time. But our committee know that it has produced no effect, when applied to young corn in the hill, or to young clover and grass on very poor stiff soil, neither was the soil benefitted for a succeeding crop, as sometimes occurs with this fossil. Notwithstanding these discouraging circumstances, such have been the advantages in other places, resulting from the use of gypsum, that your committee recommend to every member, to lose no opportunity of procuring a little of it, and apply it to various crops, in various ways. A thin layer of it, mixed in turn with a compost heap, especially where a great proportion of vegetable matter is used, would undoubtedly tend to break down the woody fibre, and reduce the mass more speedily to the state of good manure; and in all operations with gypsum it should be recollected, that it is now pretty well ascertained, that it is not in any great degree a manure of itself, but that the vitriolic acid, converting vegetable substances into manure, is the cause of its imparting fertility to soils; where there is no such vegetable substance, it must be useless. Until however, the wisdom of our Legislature, aided by the public spirit of our citizens, shall open our rivers or improve our roads, your committee despair of seeing gypsum generally used for agricultural purposes, even if its effects were as decidedly advantageous here, as they have been found to be in our sister states. They therefore proceed to bring to the notice of the society, another substance, which has the all important advantage of being in the greatest abundance, and which has lately been highly recommended by zealous and intelligent writers.

This substance is burnt clay. Sir John Sinclair, in a late work on agriculture, published only last year, informs us that he found the first account of clay ashes, in an agricultural work, published in the year 1732, so that it is an old practice lately revived, and which has been highly recommended by the most voluminous writer of the age, Mr. William Cobbett, who, from his own experience, recommends it in the strongest manner for his Russian Turnip. The author of the "Complete Grazer" also gives an account of clay ashes, and says that poor worn soils, which, with manure, would only produce rye, with ten or twelve loads of clay ashes, have produced abundant and luxuriant crops. Mr. L'Honniedieu also recommends clay ashes to the New York Society for the Promotion of Agriculture, as the cheapest manure that can be procured; and lastly, Dr. Sease, in a letter to the Philadelphia Agricultural Society, published last year, collects and cites many authorities, tending to prove the usefulness and cheapness of clay ashes, as a manure. The weight and respectability of these authorities, have decided your committee to commence some experiments on this subject, as soon as our harvest is secured, and to recommend to their brother farmers to multiply the chances of success, by burning clay into ashes themselves.

Although your committee do not understand the precise mode in which burnt clay fertilizes the soil, further than by opening and pulverizing it; yet the results of combustion are, in many cases, so little known, that they will not suffer their ignorance of the *modus operandi*, to check their endeavors to obtain useful and practical knowledge; and they are the more incited to spare no exertions on this subject, from the conviction, that if the clay ashes do really fertilize a stiff, worn soil, they will furnish the great desideratum of our farmers, namely, a sufficiency of manure. For not only are the materials, clay and wood every where at hand, but it is believed the labor of preparing the ashes for the soil is less than in any other mode of procuring manure in any quantity. Your committee will now proceed to detail the mode they would recommend for obtaining the largest quantity of these ashes, with the least labor.

On some clay ridge most convenient to the field intended to be manured, dig a hole one foot deep, and from ten to fifteen feet square. Small kilns are recommended to begin with, as experience will suggest remedies for defects. Place the excavated clay round the sides of this shallow pit, and in the centre of it construct a small square pen, four or five feet high, and nearly a foot square, with small kindling wood, similar to the top of a common clay chimney; then cut a cord of wood four feet long, and lay the sticks crossing each other, over the bottom of the pit; having previously made a channel from the bottom of the small square, to the outside, by laying two stout sticks, eight or ten inches apart, on the ground, and covering them with flat rock or turf sods, to communicate a current of air to the centre and keep up the fire. This channel will not be needed after the kiln is once fairly on fire; then cover over the whole surface of your kiln with turf sods from the locks of your fence, and throw on the clay you have excavated, and dog from about it, covering the sods two or three feet with it; then set fire to your kiln, and cover the top of your small square pen with brush and sods, to exclude external air, which should only be admitted from the channel outside. It is there to be treated like a coal kiln. As the clay burns, more is to be thrown on in the places most burnt; and as the clay will burn of itself, you must supply more till you have enough for your purpose. The only precaution necessary is, not to let the fire break out, till you have enough burnt, and this may involve the necessity of watching it at night. As soon as the ashes are cool, they are fit for use, and should be spread on the land, and lightly ploughed or harrowed in, where it is said they will have an astonishing effect in producing prodigious crops of grass, grain, or any vegetable.

Your committee will conclude this part of their subject, by stating distinctly, that the information here given is derivative, and their authorities have been cited. They are sorry that their own experience furnishes nothing on the subject, but they will add, they are sanguine, as to the result, and hopes that the members of this society will zealously unite in the determination practically to prove the utility of clay ashes on grain and turnips.

The application of manures to the soil, which is the remaining subject of discussion, should vary according to the nature both of the manure, the soil, and the crop which is first to be benefited by it. All ameliorating mixtures of soil may be made at the most convenient season, but the application of manure must be considered, both as to the state of the manure itself, (which involves the controversy between hot and short muck farmers,) and as to the state or preparation of the land, for a crop, or during its growth. With regard to the state of the manure at the time of application, justly celebrated farmers have given opinions diametrically opposite; and yet your committee are bold enough to disagree with both opinions considered as exclusive, and to say that both fermented and unfermented manures are proper at different times, and for different crops. For instance, your committee would not recommend the immediate application of hot stable manure, to a crop of wheat, though they would have no objection to a corn or pea crop; and the reason is obvious: Not only might hot stable manure produce diseases in a wheat crop, but it would probably introduce the seeds of weeds, which would have an opportunity of again seedling themselves and polluting your land, before your broadcast crop is off; but in a corn crop we should not fear these unhappy consequences, because our corn is a stout and vigorous plant, requiring strong manures; and as it is always a drill crop, the young weeds which might be introduced with the unfermented manure, would be destroyed in the necessary culture of the crop. These instances will enable the society to decide for themselves, when fermented or unfermented manures should be used. Well fermented manures and composts should in general be applied for broadcast crops, except perhaps barley; and hot muck may in this country be safely applied to all drill crops.

Although your committee have stated that short muck or fermented manures or composts, are a proper dressing for wheat, and for the reasons they have given, yet they do not wish to be understood as forbidding altogether the application of unfermented manures to that crop. On the contrary, they would recommend experiments, on a small scale, of stable manure, to the wheat fields, in order to ascertain more precisely its nature and effects. To this they are the more induced, from having lately seen a successful experiment made with hot muck on wheat, in the fourth volume of the memoirs of the Philadelphia Agricultural Society. Comparative experiments are not sufficiently attended to, and although it is now well known that fermented manures are proper for the wheat field, yet sufficient trials have not been made with hot muck to prove that it may not have advantages outweighing the disadvantages of introducing weed seeds, and perhaps some diseases. For weeds ought not to be dreaded so much in this country, as in others, on account of the frequency of fallow crops; and perhaps the diseases introduced by hot muck, may be attributed to the want of judgment in the farmer, in applying it in too great a quantity. If the evil of weed seeds and disease can be remedied or even abated, your committee see a great

advantage in the superior strength and quality of hot muck, as they believe that twenty cart loads of it will impart as much fertility to an acre of clay land, as forty of well rotted manure; because the former would contain nearly as much soluble matter as the latter, and of greater strength, and have besides all the grasses in them, which the rotted manure will have lost in the different stages of its decomposition.

With regard to the time of applying manures to the soil, by attending to the principles laid down in the first part of this report, we shall be enabled to decide that question with the greatest probability of successful result. As carbonic acid and ammoniacal gasses are formed during fermentation, and these are powerful agents for our purpose, it follows that these gasses should be formed in the soil, where they would immediately benefit us, and not in a manure heap, whence they would escape, in the surrounding atmosphere, and be lost. Further, as all manures must be in a state of solution before they can become the food of plants, it follows that manures should be kept dry, till applied to the soil, both to check fermentation, and the consequent escape of the gasses, and preserve their soluble parts from being dissolved and wasted in the manure heap. From these two principles, it results that hot muck should be kept in or under your stable as compost and dry as possible, or if in a manure heap, it should be well covered with earth, till you are about to plant your drill crop previously to which, it should be carted on the land, spread on the surface evenly, or scattered in drill in deep furrows, and covered with the plough without one moment's unnecessary delay. The carting and ploughing in, should be done at the same time if possible.

Vegetable composts, having an excess of fibrous and insoluble matters, should be treated differently. To break down and dissolve the woody fibre, the vegetable substance composing your compost should be laid in layers, intermixed with lime, ashes, gypsum, clay ashes, or animal dung, and water enough to commence a fermentation should be added, and when the carbonic acid begins to fly off, the heap should be well covered with earth, and kept so till wanted for your broadcast crop. The carting out, spreading and ploughing under, should be performed as expeditiously as possible, and this operation in both kinds of manure should be performed as immediately before the seeding as convenient, in order that your young plants should lose none of the benefits to be derived from them.

There are two points which present themselves here, which though not strictly belonging to this committee, they will briefly examine. One, the most advantageous mode of spreading manure, whether all over the surface, or in drill, and the other, whether all manures had better be applied to a crop preparatory to wheat, rather than to the wheat crop itself.

When manure is to be applied to a drill crop, which is to be succeeded by one or more fall crops, your committee are of opinion that scattering the manure along the bottom of furrows, four, five, or six feet apart, is the best mode, be-

cause, one half of the quantity at least, will be sufficient, or saved for other fields. Your manure is better buried beneath the soil, and of course more secure from evaporation; the operation itself is more easy than ploughing under, and if three drill crops are taken, by running your drill furrows in different places each year, they will probably all be good, and your field will at last be all manured by one or two cross ploughings. Unquestionably these reasons do not apply to a broadcast crop, where the manure should be spread as regularly as possible, all over the surface, and as regularly ploughed under.

With respect to the application of any manure, immediately to a wheat crop, your committee are of opinion it ought to be avoided if possible, at least until further experiment shall test the degree of danger to be incurred from disease on weeds. One bold farmer, as above mentioned, has been successful in one attempt at raising a heavy crop of wheat with stable manure, but one fact should not be permitted, hastily, to overset the experience of years. A reasonable prudence will warn us that the greatest care will not secure our young wheat from being overrun with weeds in the spring, which will not only injure the crop, but the land afterwards; even if the grain escapes the diseases to which the immediate application of hot stable manure exposes it. In all stiff soils, it is certainly advisable to plant a drill crop, as a preparation for wheat, and apply your manure to that crop. Weeds will then be destroyed in the cultivation of this crop, and your land in the fall will be left clean, pulverized, and rich. Potatoes, beans, peas, to be cut for fodder, or any drill crop which may be removed by the last of August, would repay the farmer for his additional trouble.

Your committee will conclude at this time, with the following general rules with respect to manures, and their application, which, though they may be liable to some exceptions, they trust will prove useful.

Farm yard manures should be kept from fermenting as much as possible. This process should take place in the soil.

In composts, fermentation should be encouraged so far as to break down the woody fibre of the vegetable substances of which they are composed, so as to render them soluble, and afterwards kept dry and cool.

The time of application to the soil, should be that immediately preceding the introduction of the seed.

All which is respectfully submitted.

THOMAS PINCKNEY, Jr.

Chairman.

FROM THE SCHOHARIE OBSERVER.

THE "YELLOW WATER" IN HORSES.

Symptoms.—This disease is always attended with a violent palpitation of the heart; a drooping of the head and sleepiness of the eyes; the hair of the mane and tail become loose.

Remedy.—One quarter ounce gamboge; one half ounce salt petre; one ounce alum; one ounce coppers. Pulverize all these ingredients, and put the whole into a bottle with four

gills of cold water; stop it tight, shake it well, and let it stand one night; it is then fit for use.

Application.—Give one table spoonful of the mixture three mornings running, then omitting three mornings, repeat the dose as before, and so on until the horse has taken nine doses. A cowl is to be made in the breast as soon as the use of the medicine commences, turning it once a day.

Working the horse or bleeding him within three months is forbidden.

The subscriber has cured many horses in the last stage of this disease, and never lost one—he is now old and infirm, and wishes the cure made known for the public good—and as this disease is very prevalent and mortal among horses, it will be unnecessary to suggest the propriety to editors of public newspapers, to give it publicity for their customers.

DAVID WILEY.

Schoharie, June 27, 1821.

Messrs. Strickland and Baldwin, the engineers, left this city, on Monday last, with several others engaged in the work, to commence operation on the Union Canal, which is to unite the waters of the Susquehanna and the Schuylkill.

Potatoes.—The best mode of preserving potatoes, is to pack them in casks when digging them from the ground, and filling the interstices, as they are put into the casks with sand. The cask will hold as many potatoes as it would without sand; by this means the air is sufficiently excluded, which is very injurious to the potatoes, as the light of the sun; they cannot be too soon secured from both. Hundreds of barrels taken to the West Indies, on arrival had preserved their flavour and sweetness as good as when they first came out of the ground, and they were not in the slightest degree affected by the close air of the ship.

THE FARMER.

BALTIMORE, FRIDAY, OCTOBER 12, 1821.

☞ To the article on "the horse and plough," we had prepared one on the wagon, with some engravings to illustrate the proper mode of gearing with a view to the most advantageous use of horse power—for want of room these views have been postponed.

☞ We shall venture on the publication of the proceedings of another Agricultural Festival at Holkham. These proceedings cast light on the political rights of agriculture—they bring into view new modes and objects of culture—they display the enterprise and noble hospitality of Mr. Coke. Let his example serve as a reproach to the wealthy and ambitious of other countries, who have the means and the intelligence without the spirit and the liberality to follow his example, on any even the smallest scale.

☞ On reading again the valuable papers from Commodore Porter, on the preservation of timber, we discovered an error of the Printer in copying the words "tu Brute"—a small b is used instead of the capital B—This would be a ludicrous mistake if it were not comtemplated; first by the well known Latin exclamation of Cæsar, who, on discovering Brutus amongst his assassins cries out in surprise and despair "a tu Brute?" Again the words as printed with a small b, if taken as French words—would signify thou brute—now no one at all acquainted, and there are few Americans who are not, with the professional life and predilections of Com. Porter could ever suspect him of

speaking disparagingly of the French nation—we know enough of his sentiments to affirm that no man can entertain for it a higher respect than he does—still he would repeat injurious insinuations from any quarter. Thus it is that in the case referred to he says that animadversions have lately been made by the French minister of Marine, with a view of exalting the character of his naval administration at the expense of ours—"The same (says he) has been done in England—let this pass—But (of the French) *et tu Brute?*"—The error committed in the Farmer was corrected in the Washington City Gazette where the numbers were copied. We should not have taken the trouble to make these corrections if we were not certain that the observations of the Commodore in relation to the regulations of the French and English naval service would attract attention "across the waters" where great vigilance is at present exercised in all things connected with that branch of their forces.

PRICES CURRENT.

Flour from the wagons, \$5 87½ to \$6—Whiskey from do. 30 cts. exclusive of bbl—Wheat, white, \$1 12 to 1 18—Red, do. \$1 10 to \$1 15—Corn, 53 to 34 cts—Rye, 60 cents—Oats, 30 cents—Barley, 60 a 65 cts—Hay, pr ton 12 a \$14—Straw do. \$8—Live Cattle, \$5 a \$6—Codfish, pr quintal, wholesale, \$3, retail 3 50 a \$4—N. E. Beans pr bushel \$1 12½—do. Peas, 75 cts—Prime Beef, \$9—Prime Pork, \$10 a 11—Mess, \$15—Plaster in stone \$6 pr ton—do, ground, \$1 37½ pr barrel, 33 cts. per bushel, \$8 per ton—American White Lead, \$12 50—Ground do. 13 a 14—Linsed Oil, 75 cents—Feathers, 40 a 45 cents—Shad, new, \$6—Herrings, \$2 a \$2 25, declining—Fine Salt, 45 cents per bushel—Ground Alum do. 55 a 60—St. Ubes, 60—Cadiz, 50 a 55—Turk's Island, 75—Beef, prime ps. 8 a 10 cts—Hams, 10 a 12 cts—Middlings, 17 cts—Butter, 25 cents—Eggs, 12½ cts. per dozen—Cheese, 8 a 10 cts per pound.

NORTH-CAROLINA STAPLES.—Tar \$1 75, cargo price, plenty—Turpentine, soft, \$1 75 a 1 87 do—Hard, \$1 25 a 1 37—Spirits Turpentine, 30 cents—Varnish, nominally, 25 cents, no sales—Rosin, \$1 25, nominally, no demand—Pitch scarce, \$2 25—Cotton, upland, 15 a 18 cents—Louisiana, 16 a 20—Alabama, 14 a 16 cents.

MARYLAND TOBACCO—4 hbls Patuxent, sold the present week for \$6 50—1 do. do. bright red, \$10—Several hbls wagon, at 10 to \$12.

No Sales Virginia.

Hotchkiss' Patent & Improved Straw Cutter.

These machines have the ascendancy over every other machine heretofore invented, for chaffing any & every kind of long forage. The improvements have been made at great expense, and by long experience.—The subscriber has several of them on hand now ready for sale, which he thinks would give satisfaction to the purchasers—Price only \$35, or including an extra knife—his ship is over Isaac Hayward's flower store in Market street, between Baitaw street and Cagle's Tavern.

JONATHAN S. EASTMAN.

Baltimore, Oct. 12th, 1821.

An Alderney Bull.

The Editor has for sale on his Stock Farm, a full blood Alderney Bull, calved in April last. He is very well grown, docile, and feeds kindly. The dam of this calf was imported and was mentioned in this paper by the Editor, as remarkable for the richness of her milk before he purchased her. The price will be \$80.

☞ For sale also, the fine Maltese Jack Sancher, He is 5 years old and the Editor believes he can conscientiously recommend him as the largest and finest covering Jack in America. It was found by experience that not so large cities where few colts are bred, there is not sufficient encouragement for Jacks or Stallions.

PUBLISHED BY JOHN S. SKINNER.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL. III

BALTIMORE, FRIDAY, OCTOBER 19, 1821.

NUM. 30.

AGRICULTURE.

From the London Farmer's Journal.

HOLKHAM GRAND ANNUAL SHEEP-SHEARING MEETING, &c.

(Continued from page 235.)

Mr. Honeywood, in returning thanks, observed that he should not enter into the discussion whether Kent was a garden. It certainly produced a great deal of fruit, but it also produced a great deal of excellent wheat and other grain. He was very sensible of the merits of Norfolk, as a grain county, and congratulated Mr. Coke on the share he had had, which was a large one, in establishing these merits (*applause*). As for Kent, besides gooseberries and filberts, it produced a large quantity of hops, which united with Norfolk barley, made excellent ale (*a general laugh*). But some things he had witnessed in Norfolk, particularly in the neighborhood of Holkham, which he had not seen in Kent, and could not presume to equal; he had seen Devon cattle at two years old, as big as those elsewhere usually were at three; and the three year olds, equal to others at four. He could not but be gratified at such a sight, for it reminded him of his own deficiency, and he hoped to go back and improve from the facts he had witnessed. After adding a general encomium on the agriculture of Holkham, and expressing his most grateful thanks to Mr. Coke for the important lessons he had so long taught; he concluded by thanking the company for the honor they had conferred on him.

Mr. Coke then gave "The Plough, and the good use of it," and proceeded to introduce the health of Mr. Bennett, by adverting to the old controversy on the merits of the Merinos. The breeders, he observed, had dropped off one by one, and there were now so few left, that he had the honor to see but two in the room; they, to be sure, were both celebrated ones, and besides were men of exceeding good abilities, and he doubted not but that they would ably defend the stock to which they had so long adhered. Some people said they could not sell the wool; of this he knew nothing: perhaps the gentlemen present had sold theirs, and if not, he believed they would give a good reason for it (*laughter*). But when they had sold the wool, the carcasses remained to be disposed of at some price; and that would not be difficult if they could get any body to eat the mutton. But in these times, he believed, mutton was as hard to sell as wool, and that which was hard to sell almost nothing. Notwithstanding these objections, he doubted not but they should hear a good account, and spirited defence of this long tried breed, which for his part he had long had as dear as unprofitable. He had tried them fairly, and after five years, he thought his experience was sufficient, and he parted with them. He believed he had the good fortune to make up his resolution while they were yet saleable, and he owned he was a little surprised that some persons kept theirs still; but whether it was because they could not get rid of them, he really did not know (*laughter*). Mr. Coke then stated his experience with the Downs, which breed had afforded him the highest satisfaction, and he recommended them to all those about him as much more profitable and better race of animals. It was well known that he never recommended any thing but from experience, and what he believed to be for the good of the farmer who had sent to pay, although it was difficult to tell them how to pay it now (*ap-*

plause). Mr. Coke then adverted to the many Scotch cattle brought and fed in Norfolk, which he wondered that the graziers should prefer to the Devons, which he considered to be in all respects superior. Great many of the former were heavy in bone, and as we could not eat bone, it could be no recommendation. Mr. Coke then gave the health of "Mr. Bennett" (M. P. for Wilts.) with three times three, which was drank with great applause.

Mr. Bennett in returning thanks, went at great length into the disputed points between the Merinos and Downs; he adhered to the former because he was convinced they were the more profitable; and stated all the particulars of weight of wool, price, and carcass. He insisted upon their hardy habits, their merits for folding, and said he could keep three Merinos to two Downs. He took them up with a full determination to do the best that lay in his power to improve them, because they had some remarkable good qualities, and particularly the admirable fleece which they carried, which was of such excellence that it became a most interesting object to improve such a race, as the Downs had been improved, which he thought was quite practicable. In short, as the same breed was not adapted to every soil, so the Merinos were a hardy race and adapted to light land: they were great travellers, and would walk far to the fold; though the carcasses were inferior at present, we may add the wool; and if that will not do, add three fleeces to two, or 18 lbs. to 5 or 6; and if that will not do, we can say two shillings to one (for we can make 2s. in the grease), or you may cut us down to half, (if the case is exaggerated,) and yet we shall stand fair and on good ground. (*Applause*.) Mr. Bennett added, some other points, for which he referred to his own experience, and concluded by thanking the company for the honor he had received, and for their attention to a heavy subject, in bad times. (*Applause*.)

Mr. Coke then proposed the health of Mr. Western, with many thanks to him for his exertions through life for the good of agriculture, and his country; no man stood higher in his esteem, nor had greater claims to his country's gratitude. He only feared, [and he was sorry to add that it had already happened,] that he (Mr. W.) would injure his health, and perhaps sacrifice his life to those exertions which his sense of public duty prompted him to; but he begged him to take care; he begged him to remember how much the country stood in need of such men; for there never was a time when integrity and independence of mind was so much required. (*Applause*.)

Mr. Western with three times three. (*Great applause*) Mr. Western in rising to return thanks, begged in the first place to pass by the Merino subject, not as uninteresting in his mind, but as greatly inferior to one other subject which must be uppermost in the thoughts of every one who had to do with agriculture, which was, the obtaining some relief from an oppressive taxation. (*Applause*.) He had himself made an attempt to this effect, which was at first successful, but the ministerial phalanx was too strong, and his object was defeated; but again and again he would make it, (*applause*.) and while he had voice and strength, he would exert both to that purpose. Mr. W. here made a forcible appeal to the public spirit of all classes of the public, who had any voice in the representation, to rouse themselves by every constitutional means, to oppose a system of corruption and ruin, which had so nearly destroyed all public prosperity and real independence. Mr. W. said some very animated sentences, which were loudly applauded, but which from his rapid manner of delivery, escaped our slow method of taking notes.

Mr. W. then entered into agricultural subjects, and dwelt a considerable time on the merits of the Merinos; stating many particulars of his own flock, and justifying his course by successful experience. He thought that five years was by much too short a time to form an accurate judgment; because certainly much improvement was necessary from the first, which could not so soon take place. His own plan and practice was that of breeding and feeding round, as his land was heavy, and he did not fold. Thus a flock of 200 ewes, would give 250 carcasses to be annually sold off, and would afford about 500 fleeces. Merinos ought not to be put into competition with breeds already more highly improved. Many years had been employed in improving Downs and Leicesters, and it was yet probable that in so long a time, the Merinos might equal them in merit. His wool he never kept over the year, but always sold it off, and he wished the South-down breeders had done so (*laughter*). From his experience he found the size of Merinos much increased; they were light of bone, light in the pelt, and with a natural tendency to fatten which was highly improvable. The South-downs had improved at Holkham, so that they were scarcely like the same breed; and the same expense and time might do as much for the Merinos. Mr. W. added many other arguments and instances to the same purport, and concluded by thanking the company, and drinking their healths.

In rising to propose the health of Mr. Gregg, Mr. Coke adverted to his having been recently at Quidham, spending a little time on his way to Holkham. He did not doubt but he (Mr. G.) had spent it well, and as he knew he was a keen observer, he must undoubtedly have treasured up something to say for the instruction of the company. He begged that his friend, Mr. G. would not be shy or fearful, although the noble lord, Albemarle, was present, but speak out, and let us hear what he had remarked; he was sure there might be a tale or two worth hearing, and his own rule was, that the road to improvement was finding fault. As to the Merinos, perhaps he might say something of them too, for he had a high opinion of his judgment, but what he might think of them he did not know. "Mr. Gregg," with three times three.

In rising to return thanks, Mr. Gregg said, he had neither the irritability nor the ill-nature to censure, and if he had, he could find no fault to speak of: he thought Lord Albemarle's farm was like himself, spotless; and never had he witnessed more splendid success, or more perfect management in his life. [Our readers must understand that Mr. Coke's humour in the foregoing introduction, had prepared the company for what followed; for a burst of laughter upon Mr. Gregg's assertion, which was mixed with energy and seriousness, could not else be expected; it appeared in the humorist's countenance and manner, that so highly diverted the company.] Mr. G. added his grateful thanks to the company, and begged to say, that his house lay in the road to London, and he should be happy to see any gentleman in that company, who would find bed and board at Coles.

Lord Albemarle rose quickly, and said, with happy humour, "I beg leave to return my thanks,—(not to you, sir, [Mr. Coke] for you have endeavoured to set him on my back, but to my friend, who has made such a correct report [*laughter*] of my farm." This was followed by some pleasant altercation, which highly diverted the company.

Mr. Coke then gave "General Walpole," with three times three, observing, that probably he might know something of his Lordship's farm.

The general rose and said, he remembered some-

the Lordship cultivated it, it was covered with docks and weeds, but that his Lordship had cultivated them. He then adverted to the Merinos, observing, that Mr. Bennett found them adapted to light land and folding, but Mr. Western approved them upon heavy land:—Well—what does this imply—but that they will do upon any land? (*Laughter*.) The General returned thanks.

Mr. Coke then rose to introduce the health of Lord Albemarle. He first spoke in the most earnest and feeling manner of his Lordship's worth, and the love that subsisted between them; observing, that every one who knew them must know that the little sparring that appeared between them was only put on to enliven the company; but he could not help relating what happened one day when he was accompanying his Lordship through his farm. Passing by the side of a piece of barley, his Lordship suddenly called out, "Who the devil's there in that barley?" His haughty being by, his Lordship put on some degree of anger [which it is difficult for him to do]. (*Applause*) and seemed surprised [said Mr. Coke] at the negligence or impudence of the fellow who was treading down the corn. I was a little surprized, and sorry to see my Noble Friend so much moved at what I thought so trifling an occurrence. But it passed off, and I found afterwards that it was only done to attract my attention to the field, which carried really a good crop; but they had put in the middle of it, a *short fellow* to make me think the barley was immensely tall. (*Laughter*.) "Lord Albemarle," with three times three, which was drank with great applause.

His Lordship rose, and silence being restored, he began with peculiar energy by expressing his thanks and gratitude to the company for the very flattering and affectionate manner in which his health was always received in that company. "Those who know me best [said his Lordship], know how dear to my heart is the love of such men! Men of the highest respectability,—men to whom the gratitude of the country is due,—men who are the strength of the country—its stay and its support!"—(*Great applause*.) His Lordship with great delicacy appointed the applause to the subject of his eulogium; and, here, [said his Lordship] I would willingly stop—because I have the satisfaction of seeing Noblemen and Gentlemen of the highest rank and talent, to whom your immediate attention is directed, anxious, as I know you must be, to hear them on this occasion. My friend, however, would not leave me to the full enjoyment of this quiet disposition, but has done all in his power to draw me into a good-humoured skirmish for the diversion of the company; true it is he sent forward two detachments to attack me, but they being aware of my strength, thought it prudent to decline the service: he now attacks me himself, and thus I am compelled to fight in my own defence." His Lordship then passed to the playful subject which had been started by Mr. Coke; but here our avocation is at an end, for though we made a humble attempt last year to tell the story of the grey Horse, yet we were conscious that, without his Lordship's face and manner, it was impossible to preserve the spirit of the joke. As we thus despair of conveying his Lordship's humour, so it is impossible for words to convey the energy with which he spoke of his love and friendship for Mr. Coke: from that grateful topic, his Lordship descended on the meeting, the company, and the happiness when all enjoyed on those delightful occasions; and concluded with renewing his thanks to the company in terms of the highest gratification. (*Long and long continued acclamations*.)

Mr. Coke next gave the health of "Lord Erskine" with three times three, prefacing it with a sketch of those features of his Lordship's life and character which have rendered his name immortal and ever dear to his country. (*Great applause*.)

Lord Erskine rose, holding in his hand some folio printed sheets, stiched in a blue cover. "Gentlemen, (said his Lordship), I am sure my noble friend is well aware that no man can be more thankful for the honours he is pleased to distribute, than myself;

and I think you will readily believe how sensibly I feel the testimonies of your esteem. To the kindness and partiality of my friend I have no claim but one—and that is, long and intimate acquaintance, during which if I had flatteringly forfeited his good opinion, I could not have stood here; nay, I should have been unworthy of standing any where, for those who lose the esteem of the good, neither deserve nor can enjoy their countenance and society. My noble friend overwhelms me with his encomiums, to which I am obliged to submit, and to leave it to you, Gentlemen, to compare them with the events of my life, happy if you should find therein a sufficient resemblance to justify his praise, and confirm your esteem; but formerly my friend used to attack me with a sort of humorous reproach, which I dare say many here will remember. Had this been the case now, I think I could have defended myself; had I remained in that happy ignorance of agriculture, in which I asked my noble friend where he could find sale for such a beautiful field of *lavender*, I had not now felt and known (any better than his majesty's ministers seem to know) the deplorable state of its condition, and therewith the distresses and miseries of the country. Would to God I had remained in that sweet and comfortable ignorance, enjoying the repose that agriculture is said to enjoy! But, alas! I am awakened, somehow, to the sufferings of those around me; experience, which they say makes *fools* wise, has led me (I suppose) to feel and comprehend this matter. (*Laughter*.) And I wish from my soul (since it seems nothing else can) that the same experience, or something like it, would awaken those whose duty it is to redress these intolerable wrongs, and arrest the progress of that ruin which is destroying us all. I may be told that I am roused to these sentiments by the loss of capital. Why, what should dictate the complaints, or defend the outrages of farmers, more naturally and better than losses? But are there not others who are made rich by these losses of ours? Are there not others who have suffered no loss, nor abated a shilling of their income, nor met this torrent of ruin with any arrangements suited to stop it, or even to mitigate its force; but have gone on in total ignorance, or wilful blindness, to increase its rigour and effect, even so far as to deny its existence, or to ascribe the proofs that were notorious, to any cause but that which is efficient and true? (*Great Applauses*.) I remember, gentlemen, when this estate was a heath; when these beautiful fields were a barren waste, and when the few people that lived on it were happy; they might not be rich in money, but they were rich in content, because they had enough and to spare, and none harassed them for sums which it was impossible for them to pay. Well then, now the country is waving with corn, and luxuriant in pasturage, and the people are oppressed and filled with alarm and suffering; year after year adds to their losses, and they behold other ruin at hand! What is the reason of this? Is industry a curse, and are luxuriant cornfields the destruction of a country? Why then, let farm rs return to savages, and enjoy the wild thyme and the heath, and delight their untutored minds with the furze and the broom, instead of golden harvests. Why should they labour, why should they sweat and toil, when all that they do is turned to evil, and the end of their labours is destruction? Gentle men, I cannot refrain from speaking. I cannot shut my mouth and be dumb, on the view of such monstrous absurdities. If I held my tongue, I should be from good words, it would be pain and grief to me." Can any thinking man admit, or by silence approve and encourage, such conclusions? Why then, after dinner, instead of a doiley, let them bring us a Burgundy nitch plaster to seal up the organs of speech. (*Laughter*.) Gentlemen, I have here in my hand an instrument—I think I may call it an instrument of torture; for whether I consider the reasonings I find in it, or the consequences which have preceded and must follow it, I am sure no rack could give us such pain. They have tortured common sense in it with the most persevering disregard of all logical remorse, and have defied all consecutive inference as much as if they expected the wheel under the stream to turn

backwards, and deliver the water over the *biographies*. (*Applause*.) It is true, I do not much understand agriculture, but I understand *flat contradictions*; and it seems that those who drew up this report understood neither. How such sentiments could be so associated, and how they could be held forth as a suitable commentary on the case and the evidence, it is impossible for me to conceive. I must read some passages for the edification of the company, that they may see how ably the matter is managed, and how likely we are to flourish and be relieved from our sufferings by the labours of the committee on the Agricultural Petitions. The report sets out with recapitulating certain acts of the Legislature, which have from time to time been framed to regulate the trade in corn as it regards importation; and then proceeds thus:—"Such being the state of the law, which affects, as far as legislative interference can *affair*, the import at interests brought under the consideration of the House."—So here, in the very outset, we are told not only what the present laws are, but that no laws can be better; and yet they go on immediately to state that the allegations of the petitioners are *founded in fact*, and that a considerable proportion of their expenses are paid out of the capital of the tenantry! Can any thing be a more striking picture of the ruin of a country? In future editions of our Dictionaries, we shall have no such word as *rent*, or otherwise it must be defined to be a rate or surplus of the profits of land, which used formerly to be paid to the owner of the soil. Well, then, turning to p. 16, we find the committee suggesting the *possible improvement* of the Corn Laws; they respectfully but to Parliament that it might not be expedient to abandon entirely the principle of the existing law, but to *modify its operation so as to remedy*—and so on—the grievances it has brought upon us. Further—"They conceive that this object might be attained by the imposition of a fixed duty"—Who would not suppose that they were going directly to recommend that rational and necessary course which has been so long prayed for? Here are the words *remedy and duty* in juxtaposition, and yet it appears by what follows that they have no affinity whatever, or relationship, to the subject. But I do insist, that the agriculture of this country can never recover without *duties*, commensurate with our taxation, and answerable to the highly protected state of our manufactures. But, gentlemen, the condition in which this instrument confesses us to be, not only requires a remedy, but an *instant* remedy. What should we think of a physician who was called to attend a dying man, and who, seeing his state, was to say to him—"Your disorder is fatal; you are going shortly; but keep up your spirits and have a good heart, and some time hence I will prescribe a dose of physic." (*Much laughter*.) Yet this is precisely the present case: they state and confess the full extent of the danger, and refer the remedy to *future* consideration! (*Applause*.) One observation more I must make, and I am happy to make it in the hearing of those around me; in the hearing of men to whom the country are under so much obligation. (*Applause*.) It relates to another species of consolation springing out of this report, which I will venture to say is just as sound and as operative as the others:—"Your committee venture to hope, that from the great accumulation of capital in the country, co-operating with the effects of a positive and steady reduction of the public debt"—and so on. I wish to speak with respect of those in the offices of government; but the man that drew this report could intend nothing but delusion, if he justify and support the conduct of ministers. Here is a main hope of relief rested on the reduction of the debt, and every measure that would tend to that reduction most firmly resisted! (*Great applause*.) Such is the remedy we find, and such is the basis of the relief laid down in this public document. To pay our debts must be an excellent and desirable thing; but how can we pay them when we are poorer than when the money was borrowed? Men seldom borrow when their pockets are full; neither can they pay when they are empty; therefore, leaving this notable agricultural topic, let us consider what

is yet to be done on the part of the public. It is said in Job, "If you put forth your hand and touch a man he will curse thee." So I think the public are so touched, that all districts, all towns, all villages, will join in an universal cry for remedy against evils that are intolerable. This is the advice that I should give, and from nothing short of it is remedy likely to come. Whatever the whole remedy ought to be, it must certainly come of legislative power; for by that have our troubles arrived, and by that they must be cured. Hitherto the efforts of the public have been nullified by those who ought to strengthen them. Members of Parliament perform a constrained duty: they present the petition, but beg leave to say that they differ entirely from the petitioners. Why, then, what hope can the petitioners have from such Members? If we go into a Court of Law, it is no matter whether the attorney and the judge be of our opinion, because the case is to be heard, and decided upon the circumstances; but here you have the allegations set forth, and all the facts substantiated, and yet a course of cold and subservient opinion is to be delivered with the case, which shrivels and freezes up the current of evidence." His Lordship proceeded at great length to illustrate the question with reasoning, and to embellish his argument with happy turns of humour, far beyond what our limits or our abilities will enable us to follow; and concluded with sentiments of great beauty and feeling towards Mr. Coke and the company, for the honour of their attention and the testimonies of their kindness.

"Lord Crewe," with three times three. (Applause)

His Lordship rose, and stated, that he had the happiness to be one of the oldest friends of one of the best of men, Mr. Coke. (Applause) They had voted together ever since the American war. He did not profess to understand agriculture, and therefore was qualified to say little there; but he begged to add, that if good wishes were not quite in vain, those he would bestow; and if that was too little, he must build a title to their esteem, which had been so flatteringly expressed, on the kind testimonies of the ancient friendship which had subsisted between himself and his honorable host. (Applause)

[To be continued.]

From The Domestic Encyclopedia.

On Wheel Carriages.

Few implements of husbandry are of greater importance, or admit, perhaps, of more essential improvements, than wheel-carriages. Hence we cannot but express our surprise at the infatuation of those farmers, who employ large wagons, on the erroneous principle, that a greater quantity may thus be carted at one time; while they overlook the injury which such unwieldy machines necessarily occasion, both in their fields, and particularly on roads, by making deep rutts, and otherwise tearing or breaking up the soil. The principal objection to the use of these heavy vehicles on farms, is their weight; which requires an increased number of horses or cattle, that might be more profitably employed in tillage. The same observation is applicable to the common road or stage wagons: these usually weigh about $2\frac{1}{2}$ tons, and are drawn by 8, 10, or more horses, according to the distance to which they travel. Now, a single horse, of a moderate size will, in a well-constructed vehicle, and on tolerable roads draw 30 cwt. with ease, independently of the weight occasioned by the cart: and it will perform this task for a series of days, months, and even years. But, if the common wagons were laden according to such draught, they ought to carry from

30 to 40 tons; a weight exceeding their strength and incompatible with their mode of construction. The superiority of small carriages being too evident to require any farther demonstration, we shall subjoin a table, exhibiting the load which wagons and carts are, by acts of parliament, permitted to draw on the turnpike roads; and which includes both the whole incumbent load, and the vehicle itself.

[There are a series of papers in Younge's Annals of Agriculture, on the employment of horse-carts in preference to any other, both on roads and on farms, with experiments on the subject by so many practical men of the very first distinction, that no reader can doubt for a moment on the superiority of these smaller vehicles. In fact, we must give up turnpike roads, if we do not lay aside, and totally prohibit, both narrow wheels and live-horse teams.—T. C.]

	Summer Weight. cwt.	Winter Weight. cwt.
Wagons, with wheels not exceeding 9 inches	6 0 0	5 10 0
Ditto, with wheels not exceeding 6 inches	4 5 0	3 15 0
Ditto, with wheels not exceeding 3 inches	3 10 0	3 0 0
Carts, with wheels not exceeding 9 inches	5 0 0	2 15 0
Ditto, with wheels not exceeding 6 inches	2 12 0	2 7 0
Ditto, with wheels not exceeding 3 inches	1 10 0	1 7 0

Our limits not admitting a farther disquisition, we request those readers, who wish to obtain additional information on this subject, to consult Dr. ANDERSON'S "Dissertation on the Means of Constructing Wagons, and other Carriages employed for the Purposes of Agriculture;" an ingenious essay, which is inserted in the 14th vol. of his "Recreations in Agriculture." &c See also the article CARR.

The above table is preserved, from an opinion that the English Regulations may be advantageously adopted in the United States, where it is highly pleasing to see a spirit prevailing in favour of those great sources of riches to a country, TURNPIKE ROADS.

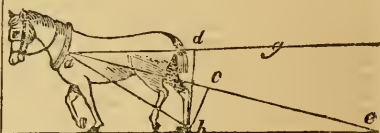
The great importance of enabling a horse or ox to draw with the greatest power, is self-evident; and hence the reader is presented with the following observations, by Mr. WALKER, extracted from his "Lectures on Philosophy," 4to.

It is evident, that where the neck rises from the horse, the shoulder-blades form the resting place of his collar, or harness, into a slope or inclination; and as this slope forms an angle, with a perpendicular to the horizon, of about 11 or 15 degrees, it is evident, the line of his draught should form the same angle with the horizon, because he will then pull perpendicularly to the shape of his shoulder, and all parts of that shoulder will be equally pressed by the collar. The following figure may render this more intelligible, and show that a horse draws more conformably to his mechanism in a sloping, than an horizontal line.



The horse himself, considered as a lever, has in this inclined draught a manifest advantage over his obstacles, in comparison of an horizontal draught, as may be seen by the next figure.

When a horse is yoked to a post, or has any great obstacle to overcome, he converts himself into a lever, making his hind feet the fulcrum, and the centre of gravity of his body to lean over it, at as great a distance as possible, by thrusting out his hind feet; by this means acting both by his weight and muscular strength, and lengthening the acting part of the lever a $\frac{1}{2}$, he overcomes the difficulty more by his weight than by his muscular strength; for the muscles of the fore legs act upon the bones to so great a mechanical disadvantage, that though he exerts them with all his might, they serve in great difficulties, for little more than props to the fore part of his body. Hence we see the great use of heavy horses for draught.



But the great mechanical advantage of the inclined draught, may be more particularly seen, by calling the line a b the acting part of a lever, and the nearest approach from the fulcrum b to the inclined line of draught, (that is, b c) the resisting part of a lever; compare this with the resting part of a lever, touching the horizontal line of draught, (that is, b d) and it will be found nearly double: consequently, agreeably to the known properties of the lever, a weight at g would require double the exertion in the horse to remove it, that the same weight would require was it placed at e . These advantages, great as they are, are yet so obvious, that one wonders how they could be overlooked.

The obvious conclusions are, that four horses, with each a properly constructed cart, will draw much more, and with more ease to themselves, than when they are yoked in a team to one cart; because, in that case, three of the horses must draw horizontally, and consequently in a manner inconsistent with their mechanism, and the established laws of mechanics. The horse's collar is also drawn against his throat, by which his breathing is interrupted; and in cart teams, (where the horses are not marshalled, as in wagons,) one horse is standing still, perhaps, while another is wasting his strength in pulling him forward. One horse to relieve himself, leans on one way out of the line of draught, whilst another is leaning a contrary way; in short their strength is seldom united.

From a number of experiments made by Mr. WALKER, for the purpose of determining the proper draught, there appeared to be an evident

disadvantage in drawing from above the centre; and on the contrary, a considerable increase of power in drawing from the axes. Hence he concludes as the splinter bar, or point of draught, in most carriages, is placed about one-fourth the diameter of the fore wheel above its centre, it is evident, that a pressure equal to one fifth of whatever weight lies upon it, is actually added to the natural weight, by this situation of the point of draught. For 24 oz. surmounted the obstacle when the pull was from the centre, and 30 oz. were required to surmount it, at half the length of the spoke above the centre.

From Mr. WALKER's experiments to ascertain the best proportions between the heights of the fore and hind wheels; it appeared, that there was little superiority or inferiority in all the variety of combinations of heights in fore and hind wheels. Fore wheels, however, of four feet 8 inches, and hind wheels of five feet six inches, seem to have what little advantage there is. To the objection which might be made against these dimensions, founded upon the inconveniences arising to the coach maker in altering the routine of his business, he replies it is certainly as easy to fix the splinter-bar under the futchells, as upon them; and I see no great outrage that would be done to appearance and fashion, if the buttons on which the traces are looped, were under the splinter-bar instead of being a-top. In these cases the draught would have all its mechanical advantages, and the horses would draw agreeably to their form and anatomy; the pole would have the same command of the carriage down hill, and the same command in turning as in the present method.

[The reader must consult the essays of Mr. EDGEWORTH and Mr. CUMMINGS, and the reports of the committee of the house of commons on the public roads.—T. C.]

Sketches on Practical Agriculture.

BY JOSHUA TYSON.

(Continued from page 226, vol. 3.)

Sheep.—First, of feeding wethers. Purchase in the month of September or October the number of wethers you design to fatten; be careful to select handsome thriving sheep, between three and six years old. Let them pasture the field you intend ploughing up for Indian corn the next season. Sheep I consider very injurious to good pasture land, if permitted to pasture late in the fall and winter, for they eat the grass and roots so close, as in a great measure to destroy the succeeding year's crop of grass; for that reason, I would not let them graze on any field late in the fall, but those which are designed to be ploughed in the spring. In the winter they should have a large open stable, as it will not do to have them housed close in a small place, for they become diseased and will not fatten. Late in the fall, when the pasture has become short, they should have good hay, with a small quantity of oats and Indian corn. When the snow is on the ground, and they cannot get any grass, I have found turnips, cut small, mixed with Indian meal and a little salt, very good. They should be fed three times in the twenty-four hours. Care should be taken to give them sufficient food, but they ought not to be permitted to waste it. By carefully pursuing the above course, your sheep

will be fit for the butcher the last of February or beginning of March.

In the above statement I have given an account of my manner of feeding; but, to be more particular as to actual profit and experiment, let me state one instance.

Late in the month of November, 1811, I purchased 20 handsome wethers, at three dollars per head. I fed them in the manner before described, and kept an account of the expenses; and the result was as follows:

Prime cost of the sheep	-	\$60.00
30 bushels of Indian corn and oats	-	20.10
1 ton hay	-	16.00
		\$96.10

I sold the sheep to the butcher on the first of March following for \$4.50 per head, reserving the fleeces. They had something above 80 lbs of wool. The account then stands thus.

20 sheep at \$4.50 per head	-	\$90.00
80 lbs. of wool, at 50 cents	-	40.00
		\$130.00

Deducting the prime cost and feed from the actual sale, leaves a nett profit of \$33.90, and the manure they made, over and above a full market price.

Of Store Sheep.—For the last five or six years the dogs have been so destructive to the sheep through our country, that I have abandoned keeping of them. But permit me to state to you what I have done. In the fall of 1812, I purchased 25 very handsome young ewes, at \$2 per head. They were pastured in the fall and winter on the field that I designed ploughing for corn in the spring: they were fed on hay, turnips, and Indian meal. I raised 33 lambs. After ploughing up the field on which they had pastured, I turned them into a ten acre field I designed for fallow: on this field they pastured until about the 15th of May. They were then turned into a clover field just out in bloom. The young lambs fed with avidity and delight on the blossoms of the clover, and they soon became very fat. I sold them to the butcher for \$2.50 per head, excepting three, for which I received but \$2 per head:

So that I received for the lambs	-	\$81.00
For 75 lbs. of wool, at 50 cents	-	37.50
I sold the old sheep to the butcher at three dollars per head, one dollar more than I gave, leaving a profit of	-	25.00
So that the actual profit on 25 sheep in less than one year, which cost but \$50, was	-	\$143.50

Of raising and fattening Swine.—Swine, though a very troublesome animal, seems to be indispensable to the farmer; but with proper management, the raising of them may be made a source of profit. First, be careful to select a good breed. From experience, I know there is an advantage in being particular in this respect. I will not pretend to say which are the best breed: the China, crossed with the English-bred cared hogs, make an excellent stock. Suitable pens, pasture, plenty of food, and care and judgment in feeding, are all subjects necessary to be attended to. The pens should be large and airy: a small portion of the pens should be covered close, so as to keep the hogs in the fall

and winter from the inclemency of the weather; and the floor of the pens well flagged or paved with large flat stones, so as to prevent rooting: it is proper to have your hogs ringed; they are then not so quarrelsome: a close pen is injurious to their health. The pens should be cleaned once a week, and well littered with cornstalks, leaves, &c., and their nests or beds littered with clean wheat or rye straw: oats and buckwheat straw are very injurious to your hogs and pigs. A farmer ought to have his pen divided into three parts; one for fattening his winter hogs, one for fattening his small pork in the fall for market, and the other for his store shoats. By attending to your hogs in the manner above described, you will make a great quantity of excellent manure.

I have found the best season for raising pigs for store hogs, to have them to come about the beginning of July, then the sows will have a chance of ranging the stubble fields after harvest, and picking up the lost ears, and, with the milk from the dairy, you will raise fine pigs. They should be weaned at about six or seven weeks old. They should be put into the pen, and fed on surplus milk from the dairy, with a little Indian meal and clover grass: keep them clean, and they will thrive amazingly. As soon as potatoes are grown, a portion of them boiled will answer with the milk nearly as well as Indian meal. Boiled apples, pears, squashes, pumpkins, &c. all make excellent food, for young shoats, and much the cheapest. Every farmer, who wishes to raise pork for the market, ought to have a boiler fixed up for that purpose. It is certainly a source of advantage. Early in the month of May, as soon as there is sufficient pasture, ring your hogs and turn them out to pasture. It is best to have a lot on purpose, with water in it, that in the warm weather they may get drink and wallow: this keeps them clear of disease, which is essential to their thriving. For a few weeks after they are turned to grass, they should be pretty well fed, till they become reconciled to feeding on grass and a greater range of liberty than their pen afforded. After harvest the hogs should be turned into the orchard, that they may get the early ripe apples before the season of cider-making commences.

The fattening of winter hogs is a matter of importance, and by proper management much may be saved. As soon as the Indian corn is fit to feed, the hogs should be put into the pen. Rye, buckwheat or Indian corn, ground together, boiled potatoes, pumpkins, &c. make excellent slop for them: it should be made thick and given to them three times a day, and as much of the soft Indian corn as they will eat clean. Hogs should be fed little at a time but often, and great care taken not to stall them. The last two weeks of feeding I prefer Indian corn only and water. Their pen should be cleaned twice a week, and their bed made of clean straw. Swine are liable to a variety of diseases; to wit, mange, measles, stopping of the issues of the fore legs, &c. I believe most, if not all of those diseases, proceed from the filthy manner in which hogs are too frequently kept. The mange may be cured by sprinkling on the backs of the hogs wash ashes and curing them out of a rainy day, putting oil on them; or the most effectual way is, to wash them with soap.

sud-, and men oil them; after this trouble, keep them clean. The flour of brimstone is said to be good for the measles. I have never yet had a measly hog. For the stoppage of the issues in the fore legs, nothing more is necessary than to rub them with a corn cob, and then open the scales with the end of a knifing needle or something of that kind.

Poultry.—I conceive the raising of much poultry an actual loss to the farmer, especially when his grain fields lie near the house and barn. Geese, turkeys, and ducks seldom pay for their trouble. A reasonable stock of dunghill fowls, just enough to pick up the scattered and lost grain are profitable.

Of Grasses.—Clover has hitherto been the most productive and valuable crop of grass the farmer could raise. There has, however, within these four or five years, through this neighbourhood been a great failure of this crop. I suppose the failure may in a great measure be attributed to the following causes:—1st, We have of late years had cold dry springs, whereas clover delights in warm moist weather till it gets a start; 2d, Plaster having ceased in a great measure to produce its former effects, especially on lands that have repeatedly been sown with it; and, 3d, I think it certain, that from such long continuation of the same kind of grass, on the same fields, the soil may have become exhausted of that nourishment, which has hitherto been so agreeable to it. I have found the best time for sowing clover seed to be from the beginning to the last of March.

Timothy has also in some measure failed with in these last few years, and probably from the same causes. This grass makes the best hay for horses, but for cattle, if a little too old, it is very indifferent food; if cut just when in bloom, or a little before, and mixed with clover or other grass, they make the very best of hay. It is certainly a great exhauster of the soil; and land ought not to be permitted to remain more than three or four years under this grass, unless the land be well top-dressed with compost.

Rye Grass. I have had this grass on the farm for near twenty years. It is an early grass, and, when young, cattle eat it in preference to clover. It makes a good late pasture, for the early frosts do not hurt it like clover. It does very well to sow with clover; together they make excellent hay, and in good land yield a most abundant crop. I have had above two tons per acre. It deserves more attention from farmers than it has in this country received. The seed is easily preserved.

Orchard Grass. I have for a series of years been in the habit of sowing this grass seed; it should be sown in the fall, just after the wheat or rye are sown and harrowed in. It makes by itself but an indifferent hay, if permitted to get too old; it is best for hay mixed with clover, and mown as soon as it is out in bloom. In a good season, it produces the best second-crop hay of any grass, and makes the most abundant pasture; it continues late, and the frosts do not hurt it like clover. If care were taken to have a field of this grass kept up for winter pasture, it would be excellent for milk cows, and fattening sheep.

Herd Grass. I have to make some further

trial of it before I shall be sensible of its value; is, however, good pasture, and makes pretty good hay, but not a very abundant crop. It grows better on very poor land and boggly bottoms, than almost any other kind of grass. It may be sown in the fall or spring.

White clover makes good hay and excellent pasture; the difficulty of procuring the seed is, no doubt, the reason why it has not been more cultivated. It certainly deserves more attention from the farmer. It is much to be regretted, that hitherto there has been so little attention paid to the selecting and cultivating the various species of natural grasses with which this country abounds, so as to discover their respective and comparative virtues and value. This subject might be a source of amusement to the gentleman farmer, as well as become the means of great improvement to the country.

Of Green Grass. This is a native, and the most nutritious of any of the kinds of grass for fattening cattle. It requires a good soil to thrive well in. From the experiments I have made, I feel confident there is much more might be done towards its propagation than hitherto has been done, for it has been almost left to chance; but the collecting the seed and regularly sowing it is of the greatest importance.

Of the Barn-Yard and Sheds.—The barn-yard should be large and enclosed with a stone wall of sufficient height to keep the cattle from jumping out. A strong rail fence answers pretty well for a time, but is liable to be broken down; that upon the whole, the stone wall where stone can be easily procured, is the cheapest. Sheds, to feed under and to shelter the cattle from the north and north-east winter storms, and to keep the manure under, are of much importance. In cleaning of the stables, it is an advantage to mix the dung of the cattle and horses together. The cattle tramping it promotes the too early fermentation, which is a great loss. Dung should not be permitted to ferment until a little before you want to use it. The bottom of the barn-yard should be nearly level, having a small descent, so as to prevent the water after heavy rains or the thawing of snows, running into the stables. Mr Job Roberts, and some other farmers in this county, have a cistern adjoining the yard, into which runs all the surplus water of the dung. In this cistern is a pump, so that they can at any time water their gardens, corn &c. In the fall the bottom of the yard should be covered about six or nine inches deep with the richest earth that can be procured—the cleaning of ditches or mud from ponds, &c.; then litter it well with cornstalks, leaves, &c. There should be racks in the yard to feed the straw to the cattle.

The manure that is kept under sheds is much the best. Two cartloads of such dung are at least equal to three that lie exposed in the barn-yard. It is best to make compost of all the dung; although it requires considerable labour, yet I think it well repays the trouble and expense.

Of Compost.—The farmer should be a year ahead in collecting materials for his compost bed. In some convenient place in or near the field he intends to manure, he should be collecting from time to time, when there is leisure

for the other avocations of the farm, rich earth, the cleanings of ditches, mud from ponds, cracks, &c. and all kind of vegetable trash, such as weeds, leaves, even briars, &c. and have them laid in a long row, about one foot thick and twenty broad. To manure a ten acre field for wheat, there should be collected about 150 cartloads of earth, besides the vegetable trash above mentioned. In the fall it should be ploughed, harrowed, and 50 bushels of lime spread over it, and well mixed with the plough and harrow; in the spring, when it is dry, plough it up again, and put on 50 bushels more of lime; have it well mixed as before. With the plough open the middle of the bed in the latter part of May, or sooner, if convenience permits; haul out the dung that lies exposed in the barn-yard; put it on the bed in proportion of 100 loads for the whole bed: level the dung, and from both edges of the row throw over the earth so as to cover the dung up well. If there is not sufficient dung from the barn-yard, after harvest haul from the sheds so as to complete it. In this situation the dung soon ferments, and the covering it with earth retains a greater portion of that nutriment which is the food of plants, than it otherwise would do; which, if permitted to ferment uncovered, flies off into the atmosphere and is lost. The fermentation of the dung before it is put on the land is necessary to destroy the vegetative power of the seeds of noxious weeds. About the first of September, again plough and harrow the compost bed, till it is completely mixed and pulverised; then haul it out into the field in the manner described before under the article wheat. I have repeatedly mixed plaster with the compost, at the rate of one to every ten bushels of lime.

In this manner the farmer will be able to manure double the quantity of land, that he would by pursuing the old fashioned plan of letting the manure lie exposed in the barn-yard until it is wanted. Much of the substance of dung is lost from exposure to heavy rains, evaporation, and from carelessness: if compost is not made, it is much better to have it heaped in the barn yard, or carted to the field, piled up, and covered with earth.

I am inclined to think that raw dung, or muck, from the stable, ploughed down immediately, will enrich the soil more, than if permitted to ferment and then put on; but there is this very great disadvantage, the raw dung thus ploughed in, encourages the growth of many species of noxious weeds.

(To be continued.)

FOR THE AMERICAN FARMER.

Corn, Wheat and Melons.

MR. J. S. SKINNER,

SIR—Whilst I was formerly, a practical farmer, on a pretty extensive scale, in the western parts of the state of New York, several facts, which seemed to me of considerable importance took place—the results of which may possibly be new and of some importance to farmers in other parts of the United States; and under this impression are

now communicated.—If you think them of any consequence you will use them according to your better judgment and discretion. They respect the culture of *Indian Corn, Wheat*, and of *Melons*.

In 1796, I removed from New Jersey to Rome, in the state of New York. I obtained from a friend in Newark, half a bushel of white seed corn, of the kind commonly called *York Cheat*, which vulgar report states, is frequently used by the millers with *wheat* in making flour—the meal of this kind being not only as *white* as the flour of *wheat* but as *soft* to the feeling as wheat flour.—I planted this seed corn late in May, in about four acres of land lately reclaimed from its wild state; but not the first crop taken from the land.—The corn came up and grew vigorously; the stalks much larger than any in the town—the ears generally set high in the stalks—say from four and a half to five feet from the ground—not an ear of which ever ripened so as to be fit for grinding into meal; I gave it to fattening hogs—and the *pork* had the appearance of *hog meat* made from Beech nuts and pumpkins. Subsequently to this experiment, I procured some of the same kind of seed corn from a friend living at *Pittsfield*, in the county of Berkshire; which when planted in Rome, ripened although not as well as other kinds of corn that had emigrated thither by more *intermediate stages*. Corn from Canada, always ripened without having so great a portion of what farmers call at the northward, *hog corn*; that is to say, corn that is imperfect and cannot be made into meal. It should seem therefore, that farmers, who wish from any cause whatever, to procure seed corn, should look for a supply to the *northward* and not the *southward* of them. As a farther reason for this, let me state that some years after I resided in Rome, a friend in New Jersey gave me a part of an ear of Virginia corn—I think he called it the *gourd corn*. He might have called it *horse corn*, as the kernels looked of the size of a *horse's tooth*. I planted it on rich land—the west side row of my corn field.—It grew until the frost killed the stalks, at which time they must have been from twelve to fourteen feet high—the ears seven or eight feet from the ground, enormously large as well as the stalks—and hardly fit for *roasting* when the frost put an end to vegetation—all was of course lost. This very year a friend who had been on a visit to Petersburg, in Virginia, gave me an ear of *white corn* very large and fine looking. I planted the corn in my garden. It grew very large, notwithstanding our severe drouth—not an ear has yet been collected (Sept. 27,) even for *roasting*—so much for corn transferred from south to north, by long strides.

As to *wheat*—I found that most of the spring wheat (that is what was sowed in the spring) was very much injured by *smut*, and the fall sowing was so much injured by *smut*, as to be unfit for making good flour or bread. As at the time of commencing farmer I had very little practical knowledge, I had recourse to books; and was induced to try several experiments to cure my wheat of *smut*. What suc-

ceeded best, was the following method: Previous to sowing my wheat: that is the day before, I had as much washed in clean water as would suffice for the next day's sowing—the method was to take a large tub used for washing clothes, that would hold at least two bushels of grain, and put one bushel into the tub at a time, and put as much clean brook or well water as the tub would hold (with the grain) and stir it well, by which means all the *smut* as well as any other *light or imperfect* grain floated on the top of the water; and was taken off with the hands of the operator or by him with a common tin skimmer. This operation I performed twice: that is by pouring off the dirty water and renewing it with clean water, and got rid of all light or *smutty* kernels of wheat, as well as any *chess*, a kind of *bastard wheat*—But it would not rid of *cockle*—this would sink with the heavy wheat and could not be separated by washing with water. When the seed wheat was thus cleansed of impurities, the same was put to *sleep for the night* in moderate *lye or lea of wood-ashes*, until next morning, then put it into *haskes* (used to gather corn, &c.) to drain, and carry to the field for sowing; and to render it *evenly* sowed, it was put into a wash tub or other convenience and well mixed with *grind plaster*, which rendered it sufficiently dry for sowing and being rendered thereby *white*, was sowed more evenly than it could otherways have been done, and the *lines* required no stakes to guide the sower of the seed.—By this means also the grain came up with a dark coloured and vigorous shoot, and subsequently grew better than wheat sowed in the common method; particularly in dry weather; and even when the seed time was moist or rainy weather, it fared as well as grain sowed *dry*—after adopting this method, I had no *smutty* wheat. As to seed wheat I procured a tierce of *hard's* white wheat from Hartford in Connecticut—one remove from Maryland. This was sowed on new land; that is the first crop from being cleared of its native woods—I sold some seed wheat of the first crop, which weighed 66 lbs. to the bushel, being repeatedly cleaned in a Dutch Flaming mill; yet in a few years I dwindled so much as not to exceed 54 to 58 lbs. to the bushel.—I should therefore recommend, often removing seed wheat from a more southerly to a more northerly situation—and the reverse for seed corn. As to *melons* the same course should be followed as for wheat. Whilst residing at Rome, I had obtained through a friend from Europe, some melon seed, brought from *Malta*—the first year's produce was delicious, beyond any thing seen or tasted; but from being replanted several years, and not taking sufficient care to keep all other melons away from them, they depreciated rapidly, and finally *run out*. Each kind of melons should be planted in distinct and distant places or borders, or the wind will, if the *Honey Bees* do not destroy their distinct qualities, by carrying the germ of one species of melon to another, and thus destroy both. The same observation applies to squashes, pumpkins, and cucumbers—none of them should be planted contiguous to any other vine.

If these observations are not new to any con-

siderable portion of your readers, you will grow them by as waste paper.

Your friend and servant,
A JERSEYMAN.

FOR THE AMERICAN FARMER.

A Subscriber would be glad to be informed by one of the intelligent Millers, in the neighbourhood of Baltimore or Brandywine, through the medium of your useful paper, what advantages the Burr Mill-Stones possess over the other kinds particularly the Esopus Stones for manufacturing wheat. J. M.

Washington, N. C.

The Editor submitted the above to his friend Caleb Kirk, from whom he received the following

ANSWER

On Mill-Stones.

Brandywine, 9th Oct. 1821.

MY FRIEND,

Thy note of the 5th, is at hand with the enclosure on the subject of *Mill-stones*—My health prevented an earlier reply. Indeed I am scarcely able to hold a pen at the present time.

The enquiry shall have my best information on the case, gained by some years experience in the grinding of grain of various kinds.

The main question is, "what advantages the Burr Mill Stones possess over the other kinds, particularly the Esopus Stones for manufacturing wheat?"

I can with freedom say they have many advantages, some of which are the following:—Being composed of a cellular flinty composition, and remarkably hard, as well as tough, some are more abundantly furnished with those cavities or cells than others which constitutes what is termed technically, an open or free stone to grind, yet they may be too open—they were first introduced here after the manufacture of flour became of some value on Brandywine. I happened to get of one of the millers, *second-hand*, the first pair that was impelled by this stream, (though out of use now,) they were a close and uncommonly hard stone, four feet in diameter. I turned them to grind plaster and got a larger pair in 1797, that proved suitable for wheat.

They were introduced here from France in blocks or detached pieces, (hence the name of French Burrs,) they are dressed with much care and fitted into an iron hoop, whose diameter constitutes the diameter of the stone from four to six feet mostly, though some have had them made seven; but doubts remain with many millers, if any advantage results from that unwieldy size. The composition as before stated, is a kind of flint of a yellowish cast generally tough, as well as hard, with cells or cavities, that when dressed to a true plane on the face put to work those cells then appear, and form sharp edges—o beneficial in the operation of grinding, the stone will (it true on the face) bear to lay down very close upon its work without discolouring the flour, and consequently shave the bran cleaner than any other stone, and at the same time not injure the flour by discoloring or deadening—provided the face of it is in good condition.

There is an American Burr obtained in the state of Georgia, of which I have seen several Mill-Stones made, and as I have been recently informed by a practical miller who had several at work, they are good stones, especially after being made and exposed to the air long enough to harden on the surface—as time and exposure has that effect, they are furnished with a more abundant share of small cells or cavities and well suited to wheat especially of the mellow kind, but are unfit for corn.

Nothing but hard and tolerably close stone will stand the constant grinding of corn of the yellow flinty kind; this kind is uniformly prepared for shipping. But it is all kiln dried previous to grinding, which renders it more brittle, consequently grinds faster.

I have known one pair of heavy stones with good force of water, manufacture about two hundred bushels in the twenty-four hours for some length of time together, under the most favorable circumstances being dried long enough to cool and not yet contract a moisture.

This was done with Burrs.—But the comparison of the enquirer of those kind of stones with Esopus-stones is yet to be answered—the Esopus-kind seems to be a mass of crystallized quartz or spar formed into small square masses and afterwards, or in some stage of formation, jumbled together in every direction (as regards the first chrysalization), in one common mass and so fixed as to become one solid body presenting an unknown variety of figures to the surface or plane of the face.

I have not tried them, but am ready to believe they would grind the yellow flint corn *without* kiln drying, and for that reason have a mind to try a pair as we grind for the country without drying—and at some seasons in the year it is difficult to reduce that kind fine enough for the most beneficial use of that class who live most on this grain. An open stone will receive the particles of grain into its cavities until they become fixed as firm, to appearance, as the particles of stone.—The Esopus I think would not admit of this consequence.

There is another kind that was used for wheat before the Burr was introduced—they are imported from Cologne in Germany, and go by the name of (Cullin or) Cologne—one they are a vitrified or more properly a volcanic production, and are excellent for the mellow corn, and used through a great portion of country (Maryland and Virginia) where they mostly cultivate the white mellow kind of corn—they take a very sharp edge when rightly dressed, and grind speedy white sharp—they are furnished with an innumerable quantity of cavities which you are continually discovering in the process of dressing and which furnish many sharp edges to cut the grain—they are dark in colour and will not lay so close to each other in grinding without endangering the colour of the flour. Those cavities appear to have contained air in the liquid stage of the matter previous to cooling—by which process they have become hard, and they answer for rye or mellow corn. There is a plenty of them at the lower end of Calvert street, Baltimore, every size required. I think they belong to S. Hollingsworth and Son.

In answer to the enquiries about half-bred wheat, I some time past half'd a little in my barley mill for particular purposes—in the first instance for a Physician, for a delicate case, and since as an article of food for two or three different persons. I suppose a small sample was sent for thy inspection, by Doctor Mease or Leach Cox, Esq. of Philadelphia.

Very Respectfully,

from
CALEB KIRK.

COTTON.

SAVING SEED FOR PLANTING.

To Cotton Planters.

Now is the time you should prepare your seed for next season. Select two, three, or four, according to the number of your most steady and careful hands—set them to picking with *strict charge only* to pick from such pods as are full ripe; above all let them not touch a single pod of any plant on which there is the least appearance of the rot—Let the Cotton thus carefully selected be put by itself and ginned separately, and the seed from it kept in a dry place to sow next year. By thus proceeding every year, you will cause your crop to ripen early and will have the best quality, and more especially what is most to be guarded against, you will in all probability escape that curse the rot, and if Cotton planters generally would adopt this course, I do not doubt but in a few years they might extirpate this their worst enemy. I have now a field of 60 acres that from its appearance a month since I should have supposed would have produced 800 lbs seed cotton to the acre—but owing to the rot it will not in all probability now produce 200 lbs. If a preventive or cure for this disease could be discovered, the planter could well afford to pay a tax of one dollar an acre for every acre planted; but as its cause cannot be discovered, no remedy can be applied: the only course that offers, seems to be to avoid perpetuating and spreading the disease by not planting any of the seed which comes from a plant that has it, for I believe that the disease is in the root, that is, if one pod is affected, the whole would be. I am aware, it may be said, that on the same plant it often happens that some pods come to maturity whilst the rest are destroyed by the rot, but this does not altogether disapprove my statement. Take the seeds of pods thus gathered, and see if the produce of those seeds is not affected with the rot.

A COTTON PLANTER.

Jones County, N. Carolina, Sept. 20th.

Why can we not elicit from our Southern friends some information as to the rot? Volumes have been published about the Hessian Fly, the Weevil and the smut, neither of which are more destructive in their ways than is the rot to the Cotton Planters. A North Carolina correspondent has lately observed to the Editor,

"I am in the habit of frequently visiting a plantation in this neighbourhood of about 150 acres of Cotton—a month or six weeks since the crop looked as promising as any I ever saw—all who saw it said it would produce 800 lbs per acre of seed cotton. About the 3th of August the rot first made its appearance, but it was not until the middle of September that it became general, it now is spread over every field, and I doubt, if the produce is 200 lbs per acre. The seed originally came from South Carolina in 1819—the gentlemen who sent it on, were as particular as they could be, but the Planters who sold it to them, must have deceived them, or were themselves deceived—the first year the rot was very bad, but the produce of that year is worse yet—this induces me to think that the disease is spread and propagated by the seed—if so, planters cannot be too careful in selecting their seed, which it appears to me should be gathered

from the early ripe and small plants. Do urge your Southern friends to communicate to you, their experience and information on this subject of Cotton planting, you and they will confer obligations on many."

Editorial Correspondence.

EXTRACTS.

I have been desirous of knowing the public opinion for some years, as to the propriety of sowing apple orchards in oats. An old and experienced landholder in this county, gave it as his opinion some years since, that he would warrant the killing of one third of the trees, if the orchard was sowed in oats. Three times in ten years, from my observation, he is right, in his calculation. I have had two orchards to decline, and many of the trees die after sowing in oats within the last four years, and I am of an opinion that Mr. Norwood at the bridge at Elkridge landing has injured his apple orchard, by the same means within the last three years.

The Editor would be glad to hear from any one who may have made any particular observations on this subject.

TRANSPLANTING PLANTS.

Mr. Skinner—The following remarks upon the packing up and transporting plants, cuttings, &c. from a distance, and the after management of them is at your disposal.

Yours, &c.

As the introduction of plants and cuttings of fruit trees from abroad, is of much consequence, and many are lost to individuals and the community, from not knowing the proper mode of packing them up for conveyance to a distance, and the management after they are received; and having some experience and success on both for a number of years past, I have thought it might be useful to communicate the mode I have found to be successful. From want of this knowledge, many fine fruits from abroad are yearly lost to the great detriment of our country, and the disappointment of those who send or receive them. A friend of mine the last year, received a number of cuttings of the finest grapes of France; but from incautiously opening the package, and suddenly exposing them to the air and light, he lost the whole, excepted; and the same thing happened this spring to two several parcels that were sent to me. The packages had been opened (after a confinement of a month or two) and the cuttings divided and sent to several persons—not a single one vegetated from the exposure they had undergone, their vegetative life being destroyed by the too great stimulus of air and light. I have several times received both rooted plants and cuttings from abroad, which from not having been properly put up, had sprouted and shot forth several inches—the whole being blanched—and as tender as possible; but by opening them cautiously in a dark cellar, and covering them lightly with a mat for several days, gradually lessening the covering and admitting more light and taking advantage of a dark cloudy day to plant them out—and keeping these tender shoots protected from too much light and air for some time, and gradually exposing them to both, they by degrees resumed their natural green color, and lived & did well; and I have now several vines that arrived in that state, in good bearing, and healthy and vigorous which if they had been suddenly exposed, would certainly have died. From this you will observe that great caution must be used in unpacking them, and that it is the sudden exposure to light and air, that destroys the vegetative life of a plant, after it has been kept from them for some time. The package must be opened in the dark, and the plants kept covered for several days, lessening the covering and admitting the light by degrees, and when planted out the same precautions used, until the plant becomes able to bear the exposure to the open air—putting over it a flower pot, box or barrel, according to the size—and raising it by degrees until you can take it away altogether with safety. If the plants or cuttings when

first opened appear dry, refresh them with gentle sprinklings of aired or sunned water.

To pack them up properly they should be put into a box upon a layer of moist earth of several inches thickness, and not too much crowded together, then more earth put upon them and pressed down pretty firmly, so as to touch and embrace them well, and keep out all air, and the cover nailed down, the box being quite full of earth to the top. In this state they may be carried from one end of the world to the other in safety, only using the precautions on opening them, of not exposing them too suddenly, or too early to the light and air. If they are to come from a great distance, and will be long on their passage, a few holes ought to be bored in the top of the box, and once a month or so, a small quantity of water poured in to refresh them. The earth in which they are packed, should be barely moist, but by no means wet, and well pressed down upon them, so as entirely to fill all vacancies and exclude all air. Upon this depends the whole success. Whole plants, roots and all—as well as cuttings should be put up in this way, by which means they will not only keep better than having merely their roots covered—but they are less trouble, and less liable to accidents, as the box containing them may be put in any convenient place in the vessel—and also, more can be brought, than in any other way. The complete covering of the moist earth preserves the vegetable life, and the above cautions in opening and planting them, will insure their success.

The Surgeon of the French frigate *Arethusa*, while lying at New-York, transmitted for publication the following remarkable cure :

"During our stay at Annapolis, a great many of the crew of the French frigate *Arethusa* were attacked with the cholera morbus, which was quickly put a stop to by use of rice-water, very strong, with much sugar and a little laudanum in it, drank plentifully. Out of one hundred and forty sick, only one died."

The following proportion of sugar, salt and salt-petre, constitute the famed Hambro pickle, which has been found to preserve meat most effectually, in hot as well as in cold climates.

Six pounds of salt :

Eight ounces of brown sugar,

Six ounces of salt petre

Dissolve these by boiling them in four gallons of water. In this pickle when perfectly cold, keep any sort of flesh meat sunk, and stopped close.

Fluid is particularly excellent for pork meat and will keep beef from becoming over salt, or hard and dry when dressed.

TRENTON, N. J. OCT. 6.

The Mammoth Hog, weight 1352 lbs. is now exhibited at Mr. E. Green's Tavern, Trenton. This noble animal was raised in the town of Nassau, Rensselaer county, state of New York. She is two years and ten months old the 8th of October, 1821, and measures 7 feet 7 inches round the body, and 16 feet 2 inches in length.

New and Improved Loom.

A Mr. Benjamin Wells, of Pittsburgh, advertises for sale, patent rights of "Warren's Improved Patent Looms," which are simple in their construction, and may be made for the small sum of ten dollars. "The utility of this loom," says Mr. Wells, "is, that the cloth

winds on the beam as it is woven, and the yarn is taken by the same process—a person accustomed to weave on this loom, can weave sixty yards per day. It can be extended to weave any breadth." This we conceive to be a valuable acquisition to manufacturers.

Large Animals.

In 1802, an Ox was raised in Connecticut, and exhibited in Philadelphia, which was 18 1/2 hands high, 11 feet from the top of his head to his hump, 12 feet from his nose to the tip of his tail, 10 feet 4 inches in girth, and weighed alive 3326 pounds.

In 1821, Mr. Benjamin Woodward, of Inlaystown, (New-Jersey) has an Ox, which weighs 3:50 pounds.

In 1807, the Durham Ox was killed in England. The height of its shoulders was 5 feet 6 inches; its length from the nose to the intersection of the tail 11 feet; it was 11 feet in girth, and weighed, alive, 3380 pounds.

In 1810, we find by Bell's Weekly Messenger, that the Durham Heifer, 4 years old, 6 feet high, 12 feet 9 inches long, and 12 feet girth, weighed alive, 3920 pounds.

A London paper, of 1810, informs of the sale of an Ox, which received a premium of 100 guineas, and which was sold for 160 guineas more, whose weight was 4:200 pounds.

An Ox, called "Capsall" of the Durham breed, exhibited, and killed the present year, 1821, measured 6 feet in height, was eleven feet six inches round, 37 inches across the back, and weighed, alive, 4340 pounds.

We have also seen in a Hallowell paper, an account of an Ox raised in England by H. Pierce, Esq. M. P. which, when rising 7 years, measured in length, including tail, 20 feet 3 inches—12 feet 6 inches from shoulder to brisket, 3 feet between the hips, height 6 feet 4 inches, girth 13 feet; and when alive weighed no less than 4:388 pounds.

As an evidence of the value which is affixed to some breeds of cattle, in England, it may be well to mention, that at a sale of Mr. Colling's stock, in 1810, a Bull, called Comet, sold for a 1000 guineas, and afterwards, in 1813, brought 1540l. or 6337 dollars—One Cow sold for 100 guineas, and another for 416.

POETRY.

From the *Troy Farmer's Register.*

The following effusion is founded upon those two beautiful lines in Don Juan.

"Sweet are our escapes

From civic revelry to rural mirth."

A MORNING IN THE COUNTRY.

Sweet are the melodies of early morn!
The shepherd's whistle, or the hunter's horn!
The cock's shrill crowing, and the chirping birds,
The noise of waters, and the low of herds.

Sweet is the song the cheerful milk-maid sings,
As forth at morn she hies—while echo rings
Through the far distant vales, her trembling notes,
While sylvan warbles stretch their varying throats.

Sweet is the bark the bound so early makes
To swift pursuit through woods, and plains and brakes,
For the poor timid hare, and sweet the sound
Of th' huntsman's horses trampling on the ground.

Sweet is the echo, as it floats along
By high-capt rocks, or distant vales among,
Bouncing along the mountain's craggy side,
Or where the waters sweep their troubled tide.

Sweet is the whistle of the plough boy heard
At early dawn—and sweet the trembling world
Of village maiden, when she yields to him
She loves, and fills his glad cup to the brim.

Sweet is the viol, and the rural dance,
The tender eye, and gentle countenance,
The soft clear pressure of the tender hand,
As in the circle all so gaily stand,

Sweet is the voice of early love, of bees
The hum, the rustling of the morning breeze.
Oh! sweet, indeed, are all the sounds of bliss
That strike the ear, on such a morn as this.

Leave then the city, and its bustling noise,
Its vain amusements, and its trifling toys—
Fly to the country where the notes or bliss
Sound full as sweetly other morns as this.

JULIAN.

THE FARMER.

BALTIMORE, FRIDAY, OCTOBER 19, 1821.

✶ ERROR CORRECTED ✶—In the interesting extract made from the letter of P. Colt, Esq. in No. 28—he is there made to state, that he removed from Paterson, in Jersey, to Rome, in the state of New-York, in the year 1776, instead of 1796—in the year 1777, all that part of New York, northwardly and westwardly of Tryon county, now Montgomery county, was a savage wilderness, and inhabited by the six nations, and the wild beasts which they hunted. It is now thickly settled by intelligent Farmers, Mechanics and Manufacturers of every description.

The article in this paper on wheel carriages was intended as an appendix to the communication of Gideon Davis in the last Farmer. It is taken from a very valuable work lately published by Abraham Small, an eminent Bookseller of Philadelphia—to wit: "The Domestic Encyclopedia," by A. F. M. Willch, M. D. second American Edition with additions—by Thomas Cooper, Esq. M. D.

PRICES CURRENT.

Flour from the wagons, \$5 75 to \$5 87 1/2—Whiskey from do. 30 cts. exclusive of bidl—Wheat, white, \$1 16 to 1 17—Red, do. \$1 12 1/2 to \$1 13—Corn, white 55 cts.—yellow 56—Rye, 60 cts. Oats, 31 3/4 cts—Barley, 55 a 57 cts—Hay, per ton 12 a \$14—Straw do. \$8—Live Cattle, \$3 a 50—Codfish, per quintal, wholesale, 53, retail 53 1/2 a \$4—N. E. Beans per bushel \$1 12 1/2—do. Peas, 75 cts—Prime Beef, \$9—Prime Pork, \$10 1/2—Mess, \$13—Plaster in stone \$6 per ton—do. ground, \$1 37 1/2 per barrel, 33 cts. per bushel, \$8 per ton—American White Lead, \$12 50—Ground do. 13 a 14—Lime do. 75 cts—Feathers, 40 a 45 cts—Shad, new, 56—Herrings, \$2 a \$2 25, declining—Fine Salt, 45 cts per bushel—Ground Alum do. 55 a 60—St. Ubes, 60—Cadiz, 50 a 55—Turk's Island, 75—Beef, prime, 8 a 10 cts—Hams, 10 a 12 cts—Middlings, 1 cts—Butter, 25 cents—Eggs, 12 cts per dozen—Cheese, 8 a 10 cts per pound.

NORTH CAROLINA STAPLES.—Tar \$1 75, cargo price, plenty Turpentine, soft, \$1 75 a 1 87 do—Hard, \$1 25 a 1 37—Spirits Turpentine, 30 cents—Varnish, nominally, 25 cents, no sales—Rosin, \$1 25, nominally, no demand—Pitch scarce, \$2 25—Cotton, upland, 15 a 18 cents—Louisiana, 16 a 20—Alabama, 14 a 16 cents.

ALABAMA TURBACCO—6 hhds good red from Calvert, 4 first at \$5—2 seconds, at \$3—inferior, first at \$5, seconds, \$2 50, dull, first at \$4—seconds, \$1 50.

KENTUCKY TURBACCO, 10 hhds sold the present week at \$5.

VIRGINIA TURBACCO—No sales.

PUBLISHED BY JOHN S. SKINNER.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua est bona norint
"Agricolae." VINO.

VOL. III.

BALTIMORE, FRIDAY, OCTOBER 26, 1824.

NUM. 31.

AGRICULTURE.

From the London Farmer's Journal.

HOLKHAM GRAND ANNUAL SHEEP-SHEARING MEETING, &c.

(Continued from page 235.)

Mr. Coke then introduced the health of "Sir Francis Burdett," by making some observations on the integrity of his political life; adding, that *when he was in prison he visited him*, and he was happy to see him at Holkham. The toast was received and drank with rapturous applause.

Sir Francis, in rising to return thanks, stated that his agricultural knowledge was but small, but his admiration of it was great, and very greatly enhanced by what he saw at Holkham; adding some happy and pointed compliments to Mr. Coke, who he was happy to hear call him (Sir Francis) his friend. If his admiration of so great a character might permit him to reciprocate that epithet, he would say, that there was no man who held his (Mr. Coke's) worth in higher honour than himself. On the particular purpose for which the company were met, it could not be expected that he had much to say; that purpose was the most honourable and most important in life, and one upon which the existence as well as the prosperity of every nation must depend. (Applause.) But, applying these meetings to the important objects of circulating general knowledge, and promoting and propagating a love of civil liberty among the yeomanry of the kingdom, he could wish they were extended to every part of it, and to become so frequent as to keep alive the love of freedom, and the spirit of the British constitution. These meetings had heretofore been called political, when no such thing was thought of or intended; it was the slander of artful and designing men, who would gladly suppress every thing, and every form of communication which enables mankind to think and compare; and to appreciate the value of measures, and endeavour to evade the evil consequences to themselves; *now*, if they were political, or should become so, it must be plainly because the mal-administration of public affairs had driven the country to the very brink of ruin, and the people to the last degree of suffering. Happy would it have been if such meetings had been political and existed every where; or happy it would be if meetings and associations, and combinations, were never wanted for mutual defence against the abuses of power, or mutual protection against the errors or the blindness of public men! He said this, because the interests of the cultivators of the soil had always been made subservient to all other interests, however trifling they might be in comparison; because other interests are more important in their claims, and more consolidated in their demands, while those of agriculture suffered from dispersion and the want of consulting together. The well-known types of the hog and the sheep might be once more applied: for the passions of the manufacturers were *bristled up* though but a hair was required of them; while the farmers yielded the rich and capacious fleece with the meekness of lambs. "Our worthy host (continued Sir F.) has not wholly proscribed all allusion to political topics because there is a point at which forbearance ceases to be a virtue, and, indeed, would help to pull down ruin upon us, by nursing false notions of our ease and comfort. It is an old saying, that *silence gives consent*; we must therefore speak, and speak out,

that our silence be not interpreted against us, into approbation of the measures that are pursued, or of our prosperity and happiness under them. (Applause.) I will not, however, go into any other particulars in regard to this matter, than may justly be allowed to belong to this meeting, however true it is (and every man must now be convinced of it,) that a more general and active attention to the great political interests of the country, is become a duty incumbent upon every man who has any stake in it. Every man, whatever be his energy or his talent, is called upon to exert them to save what is left; and not only to save, but to recover those blessings which have hitherto been inseparable from the British Constitution: it has indeed, come to this,—that without these exertions to supply the defects of our representation, and restore the independence of our Legislature, we cannot hope to see a just, fair, and economical government, and come back to the good old English enjoyments of *Liberty and property*. (Applause.) Among individuals distinguished for virtues, eminent for talents, and applauded for exertions in this cause, (and even distinguished amongst those by whose abilities the cause is aided), none is more entitled to our gratitude and admiration than Lord Erskine. (Great applause.) Whether we consider his learning, zeal, or integrity, whether we consider the perseverance of his attempts, or the freshness and vigour of his exertions; we may compare him to an ancient gem, which represents the figure of youth peeping through the mask of age. (Great Applause.) Numerous, indeed, and imperishable, are his claims to the gratitude of his country; claims which will live till intellect is extinguished, unless all sense of justice, and all love of liberty, be obliterated from the hearts of men: his great example, second to none in modern, or in ancient times, will help to restore those blessings which Englishmen, if they are true to themselves, must speedily recover; to give strength to the country, and solidity to the throne, now possessed by an illustrious family, of which the brightest ornament is here present. (Applause.) The friend and patron of whatever is good and worthy, and a most important support to the throne and constitution of the country." (Great Applause.)

Sir Francis then proceeded to discuss the merits of the Report of the Committee on the Agricultural Petitions, observing, that though its object was delusion, it has deluded no one: it stated and confessed the distresses, but it gave no relief; it agreed with the statements, and recognized the truth of the evidence, but pointed out no remedy, nor the shadow of a remedy, for evils so destructive and mischiefs so imminent. If there were no other remedy, yet there was one which was so obvious that nobody could miss it—so effectual that nobody could doubt it; and, therefore, the Committee were either dishonest or stupid, not to touch upon it. They could find no remedy in Corn laws, or if they thought they perceived any thing that might be, at some future time, recommended, they were either so doubtful or fearful—or so complaisant to interests by them better understood—that the present time appeared quite unfit for the attempt. But the present time required something that was fit, and proper, and effectual; something that popular clamour would not oppose—that would neither endanger public peace, nor put any thing to the hazard; that remedy was *reduction of taxation*. (Applause.) Reduce public expenses, and, in due proportion, the interest of the national debt, and it would give all the relief that was wanted. (Applause.) One cause of the distress was stated to be *abundance*! (Laughter.) What country was ever ruined by an abundance of the necessities of life? Whether they were abundant and cheap, or scarce and dear, the consequences

might be the same, because the total value might differ but little; it was plain then, that a system was in operation which called for more money than could be spared, and thus the capital of the country, the real, operative, and useful capital, (and not the produce of capital,) was seized upon for the public expenses. The Report was wholly a delusion, for, if not, why was it delayed? They gave hope that something would be done, but when they came to the end, they tell us nothing can be done. But the Report, besides, is contradictory; it says *taxation* cannot be the cause of the distress, because the whole country suffers; but this is a proof directly against them, for what other thing but taxation can so pervade all classes and all interests?—In conclusion, some praise had been bestowed upon the *ability* with which the Report had been drawn up: why, truly, sometimes great abilities were only used for mischievous purposes; sometimes to puzzle a case, and sometimes to clear it up; sometimes to deceive, and sometimes to enlighten: he would not dispute about the ability which had been discovered in this case, but one thing was more obvious, he meant that, whatever it was, which was used to delude the hopes and confound the understandings of men. (Applause.) The Noble Lord, (Erskine) said Sir F. has alluded to a learned profession; it is natural when malady prevails, to send for a doctor; the best we could have is here present, but all his prescriptions have been rejected." (Applause.) The Hon. Baronet then referred to the exertions of Mr. Hume, and spoke of the monstrous establishments which had been defended and persisted in, against the gentleman's able exposure. It was rendered obvious that we might have saved four millions annually for seven years; and instead of being complimented for giving up a paltry two-penny tax, the ministry might have relieved the country of most important and heavy burthens. The Hon. Baronet concluded by recommending to the yeomanry, and the whole community, to pursue, by every constitutional means, that redress which is indispensable to our existence, and by thanking the company for the honour done him.

"A fine fleece on a fat carcass."

Mr. Coke then introduced the health of Mr. Hume; prefacing the toast by remarks on his indefatigable perseverance in opposing those enormous and unnecessary establishments which were the cause of our evils, by the excessive taxation required to support them. Alluding to his exertions, as stated by the Hon. Baronet, he said, it had been rendered plain and certain that four millions annually might have been saved without any injury to the public service, but not without destroying that corrupt patronage which supported the system. The repeal of the Agricultural Horse Tax, had been stiled a *bon* from the minister; for his part, he thought Parliament granted boons to the people, if any boons were granted; the truth was, that money had been extorted from the people until it became necessary, in some way, to relax in the collection. As to the Report of the Committee, it was evidently a delusion; the ministry got the petitioners into a committee, and there they kept them. It was stated, as a preliminary, that no enquiry should be made into the taxes, the public debt, or the poor rates; and having made provisions that every thing should be avoided which could be of any service, they agreed to the committee—as the most practicable way of hushing up the whole enquiry, and getting through the session without any farther trouble: this was a notable stratagem to be sure, and its effects were extended even to the members of the House; for if any one manifested a desire to propose any thing, or did but ask a question, the answer was—"Oh wait the report of the Committee!" And—"We shall be very

desirous of doing what the committee recommend." [Laughter.] Thus enquiry was stifled; and in the interval they availed themselves of the hopes they had excited, to get through the supplies, and to give effect to the whole system of corruption for another year. "The person who broke in upon this system [said Mr. Coke], now stands in the highest estimation of public gratitude, and I beg leave to give you his health with three times three." The toast was drank with long and loud applause.

Mr. Hume, in returning thanks, said, he felt the honor done him much more than words could express; it was one thing he valued more than all others, it was to stand well in the opinions of such men as he saw around him; men who were the sinews and strength of a country, and the foundation and support of public happiness. It was his pride and consolation to have done all in his power to serve the interests of such people, and to check the career of that heedless and destructive expenditure which had precipitated the country into its present condition. In the course of his life, which had been active and eventful, he had seen the effects of perseverance in many ways exemplified, and thus had been taught the way to that success which had been honoured with such approbation: Ministers could no longer persist in their destructive career, or presume to deny the necessity of retrenchment. In his humble endeavours, he had met the powerful support of men much superior in talents and experience; of many whom he saw then present—some of whom, he was sorry to say, were frequently absent from ill health. That which he looked to as the evil first to be conquered, was the unbounded extravagance of expenditure, which was the foundation of all that patronage upon which the whole system of misrule was carried on; for there was not a man in power, who, without that expenditure, could have remained in their situations. Mr. Hume then proceeded to recapitulate the particulars in which the present exceeds the former outgoings, shewing how much the excess was occasioned by the money expended to purchase and preserve parliamentary interest; the patronage of Receivers and Collectors of Taxes, of the Customs and Excise, of the Army and Navy, was so immense, that the claimants and expectants might very well overbear, by their numbers, all hopes of contesting them; but that now the power was at an end, they would become clamorous with disappointment, and so add to the dismay and confusion of their patrons. When to all this host of patronage was added that of the Church, it became a phalanx of strength which could only be broken up by taking away the means of paying for such friends. It must be confessed, that a considerable share of the loaded gentile men have been either deceived by the temporary prosperity of the system, or bought by the favours enjoyed by themselves or their friends; they have, at any rate, essentially supported the system, and he did not doubt but it might be conscientiously done in many cases; but, however, they would now see the necessity of acting contrariwise, or of losing every shilling of property in their estates. They must undoubtedly turn round and reduce that taxation which else would destroy them; and he was convinced from what he had recently observed, that had the reduction of the Malt tax been moved for at a later period of the session, it would have been carried. He could not but advert to a topic so often named—the repeal of the Agricultural Horse tax. Most unhappily it had been called a *boon* granted by ministers. What! ninisters grant a *boon* to Parliament? Do they, or any one of them, in his official capacity, grant a *boon*? This is indeed a new era in the British constitution! Why, his Majesty himself, when the supplies are voted, thanks his *faithful Commons* for the boon they have bestowed. The experience of late years shewed that a change was necessary; and we were unworthy of the character we derived from our ancestors if we could submit to receive *boons* like this from the Ministers of State. Mr. Hume then recapitulated the particulars, estimates, expenditure, &c. of the standing army, and the circumstances of alarm and terror under which they had been artfully maintained and augmented; but he could by no means view the state

of the country with dismay, provided the people were honest to themselves, and would with hand and voice shew at once that they could no longer bear the sufferings which the system inflicted. He then proceeded to mention some particulars of malversation in collecting the revenue, and concluded by observing, that ministers, with economy in their mouths, had ended with voting ten millions, in the seventh year of peace, for the support of an armed force; adding, that the public owed no gratitude to him for opposing these establishments, for he had certainly as much pleasure in doing what he considered his duty, as they could have in shewing their approbation of his conduct. Mr. Hume again returned thanks, and sat down amidst vociferations of applause.

"The Bishop of Norwich."—Mr. Glover returned thanks, and delivered an affectionate and happy eulogium on the character of the learned prelate.

Mr. Coke then rose, and observed, that they had sat later than usual, owing to the peculiarity of the times, and the manner in which it was necessary to consider them; but that now some useful business awaited them in the Sheep yard.

From *Rees's Encyclopedia*.

LIGHT IN AGRICULTURE AND GARDENING.

Experience has shewn its infinite service to the growth of vegetables, contributing exceedingly to facilitate their vegetation, and increase their perfection and duration; as it is obvious most plants are considerably more prosperous, and attain their perfection in a free exposure, fully open to the light and air, than in shady places: the same is observed of fruits. Those growing in a situation full to the light of the sun, are in general more large and fair, ripening sooner, and more perfectly as to beauty and richness of flavour, than such as grow in the shade; these reasons should therefore determine us to cultivate most of the principal plants and fruits in situations open as much as possible to the full light and influence of the sun; though upon particular occasions and in the heat of summer, shady places may be necessary for some sort of plants, though not where shaded and darkened by spreading trees, &c. but a border open above to the full light, and only shaded from the immediate rays of the sun. For the general crops, a perfectly open, sunny, light situation, free from the shade of spreading trees, is always the most proper.

And its utility is very evident, from plants growing in garden frames, green houses, &c. in winter; when, in time of severe weather, covers or shutters have been continued long over the glasses, so as to exclude the rays of the light, they become sickly, grow pale, and assume an unhealthy appearance for a long time; the leaves often decaying or dropping off; and frequently, when the covers are continued very long without the admission of light, the whole plant in many sorts gradually dwindles and perishes. Great attention is of course requisite in this case, when, from the severity of the weather, the use of other covers beside the glasses is necessary, to take every opportunity of a favorable day or even an hour or two of a day to admit the light as fully as possible. The same is also the case with plants in early hot beds, such as Cucumbers, Melons, &c. which, early in the year, require a covering of mats over the glasses every night; as when these additional covers are applied too soon in the afternoon, and continued late in the morning, so as to keep the plants long in darkness, it is highly disadvantageous to their growth, causing them to grow weak, pale and sickly.

As light is therefore so beneficial to plants in general, it should be increased as much as possible to those in frames, green houses, stoves, &c. In these situations it may be useful to paint the inside of all such departments white, to reflect the rays of light as much as possible, and particularly in the night, and in the day time when the severity requires covers or shutters to be placed over the glasses or other conveniences where plants are kept.

The author of *Phytologia* remarks, that the contest for light as well as for air, which is so visible in the growth of vegetables, shews the former to be of great consequence to their existence, as well as the latter. Thus many flowers follow the sun during the course of the day by the nutation of the stalks, not by the rotation of them, as observed in the Sun flower by Doctor Hales; and the leaves of all plants endeavour to turn their upper surface to the light which is their respiratory organs or lungs. The great use of all plants turning the upper surfaces of their leaves to the light is thus he thinks intelligible; the water perspired from those surfaces is, he conceives, hyper-oxygenated, and as it escapes from the sharp edges of the mouths of the perspiring vessels when acted upon by the sun's light gives out oxygen, which oxygen thus liberated from the perspired water and added to that of the common atmosphere, presents to the respiratory terminations of the pulmonary arteries on the upper surfaces of leaves, an atmosphere more replete with vital air. This necessity of light to the respiration of vegetables is so great, that there is reason to believe that many plants do not respire during the night, but exist in a torpid state like the water sleeping insects. Thus the Mimosa, Sensitive plant, and many others, close the upper surfaces of their opposite leaves together during the night and thus preclude them both from the air and light, and the internal surfaces of innumerable flowers, which are their respiratory organs, are closed during the night and thus unexposed both to light and air.

It is however observed that the *fungi*, which are termed vegetables because they are fixed to the earth or to the stones, trees or timber, where they are found can exist without light or much air; as appears in the truffle, which never appears above ground, and by other fungi which grow in dark cellars; and in esculent mushrooms, which are cultivated beneath beds of straw. The etiolation or blanching of vegetables depends upon the keeping of the light from them.

It is further noticed that the *element of light* as well as that of heat, is necessary to vegetation. In this climate they both seem in general, to be injurious only by their defect and seldom by excess. But as light acts as a stimulus on the more irritable or sensitive parts of plants, which appears by the expansion of many flowers and of some leaves when the sun shines on them; and by the nutation of the whole, as of the Sun flower (*Helianthus*) and by the bending of the summits of all plants confined in houses towards the light; there may be diseases owing to the excess of this stimulus which have not been attended to; to prevent which the flowers of *trapezium* salsafi, and of other plants, close about noon. Other unobserved diseases may be owing to a defect of the stimulus of light, as a *mimosa* sensitive plant, which had been confined in a dark room, did not open its foliage though late in the day till many minutes after it was exposed to the light. The excess of light has not, however, been observed to be attended by vegetable diseases in these more northern latitudes so much as in others.

Sketches on Practical Agriculture.

BY JOSHUA TYSON.

(Concluded from page 237, vol. 3.)

Of Top-dressing with Compost.—The best time for performing this work, I have found to be about the last of March or beginning of April, just as the grass is beginning to vegetate. Top-dressing with raw dung makes the grass to grow well, but is the means of increasing noxious weeds; I would therefore, prefer the compost.

The fall does very well for top-dressing, say in the month of November, before the ground becomes frozen. If the dressing is done after the severe frost commences, the substance of the compost is very liable to be washed off by

the winter rains before it has an opportunity of penetrating the soil. I have found wood ashes from the lime-kilns an excellent ingredient in the compost for top-dressing.

Of Fencing.—From the too profuse use of wood, and carelessness in not taking care to secure a second growth, timber pretty generally throughout the first settled counties of the state, has become an article of much demand and expense, and especially such timber as is best adapted for fencing; it therefore has, in many parts of the country, become a matter of necessity to devise some other plans of enclosing, as substitutes for the valuable article of timber. In various parts of the country, some farmers are turning their attention to the raising of thorn, and other hedges; and in some instances, where there has been great care and attention, they promise to answer the desired purpose; but in a variety of instances they appear to have failed through some cause or other, probably from a want of proper care, an unsuitable soil, or the destruction of insects and vermin. In those parts of the country where stone abounds, either on the surface or in quarries, I am strongly impressed with the belief that stone fences are the best possible substitute that can be devised; and, making the calculation but for a few years, much the least expensive. My plan of making stone fence is this—where there is a smooth solid surface, commence laying pretty broad solid stones, without digging any foundation, two feet and a half wide at the bottom and heveled to fifteen inches on the top, and three feet and a half high. The top should be capped with stone as broad as the top of the wall. Then on each side of the wall, at the distance of eighteen inches or two feet, plough or dig a ditch and throw up the earth so as to form a foundation to the wall, to prevent the effects of the frosts.

Of the Implements of Farming.—In carrying on the business of husbandry with neatness, ease and expedition, it is absolutely necessary to be provided with a sufficient quantity of implements, of which the plough is one of the most material, and no reasonable expense should be spared to be provided with a sufficient set of ploughs, suitable to the various processes. After considerable practice and much observation, I think those made by Mr. Miles, near the Fox Chase, in the county of Philadelphia, to be the best I have ever seen. There should be harrows of different sizes and forms, so as to suit for one, two, or three horses. Good harrowing is a very material part of farming, much more so than many of our farmers consider it. Sufficient wagons and carts to suit each particular business. On a farm of considerable size, to have a shop with a variety of carpenter's and smith's tools, is a great convenience, and much saving of time and expense; for any ingenious active farmer can soon learn to do almost all the repairs of his utensils. This may be done, it odd times and rainy days. As soon as the farm-work is done, the farmer should collect his various implements, and, at convenient time through the winter, have them all repaired, or new ones made, so as to have every thing in complete order by the opening of the spring. This preparation he should by no means omit.

If what I have written should be the means of making "two blades of grass grow, where but one grew before," (if Swift's ideas be correct,) I shall "deserve better of my country, than all the herd of little politicians put together."

With every consideration of the highest respect and esteem,
I am, sir, yours,
JOS. J. TYSON.

ON RIPPLE GRASS.—By Thomas Pinckney, Jr.,
July, 1819.

Albany, July 7th, 1819.

Sir—Permit me to recommend to the attention of the Society, a small grass growing spontaneously all over our district, and which has the important advantages of being a native of our climate and soil, and retaining its verdure and juices throughout the winter. I allude to the narrow-leaved plantain, or ripple grass, (*Plantago tenuifolia*.) My sheep have never thriven well in winter, notwithstanding they have a dry fold; a good shelter, with racks and troughs, and are tolerably well supplied with dry food and pea hay; but last winter they suffered so much from the want of pasture, and brought me so few lambs, that my attention was naturally turned to the best mode of procuring them green food, occasionally during the winter, and very early in the spring. A visit which I paid to a neighbour, solved my difficulty. His sheep were in fine order, and he had not lost a lamb. A small part of his apple orchard, not half an acre, was tolerably well set with ripple grass, and the ewes and young lambs were turned on it. As I know that in all other respects, my flock are at least as well treated as his, I could impute his success to no other cause than his ripple grass; which was his opinion also. Thinking well of this grass, I had collected and sown a few seed near my house, mixed with orchard grass and red clover; and I think it has always maintained a superiority over them, as a winter bit for sheep. The soil is exceedingly poor, a stiff red clay and very stony. I find this grass very favourably spoken of in Anderson's Essay on Agriculture, who says, that "it deserves the attention of the farmer, as a valuable pasture grass. It will thrive upon barren soils, where hardly any other plant could live. It may most easily be distinguished on poor clays, where it is frequently found without the mixture of any other plant; cattle, horses and sheep, eat the leaves greedily, especially sheep, which bite it very close to the ground."

This authority so strongly confirming my own observation, has induced me at this time, to trouble the Society with these remarks, as the seed of this grass is now ripe, and to recommend to my brother farmers, to collect it carefully, and to sow it in September, on a piece of good land, well ploughed, and the seeds harrowed in. I would not advise the mixture of any other seed with it, unless they can procure that of the broad-leaved plantain, which also grows commonly about our fields; but I would recommend them to give it a fair chance of success. Not to rely on its growing on poor land; but to prepare half an acre by deep ploughing, and manure, if the piece is not naturally rich, to sow his seed thick enough, and harrow it in carefully. This little trouble will be nothing in comparison of its value to him next winter, and if he but performs his part well, I feel assured he will soon extend his half-acre to the quantity his flock will require.

I am Sir,

Your obedient humble servant,

THOMAS PINCKNEY, JR.

Joseph V. Shanklin Esq.

Boston, Oct. 16, 1821

BRIGHTON CATTLE SHOW—1821.

Reports of the several Committees.

NO. I.

Massachusetts Agricultural Society.

The committee appointed to award the premiums

offered for every species of Horned Cattle, report: That the wise provision of the Trustees in dividing the duties of the committee on live stock was this year wholly defeated, as to the branch, which comprises horned cattle, owing to the great and unexpected increase in the number of competitors. From eighty different entries of live stock, which was the number last year, it this year suddenly rose to more than 100.—Perhaps there is no surer test of the increasing interest felt in the subject of agriculture generally, and in the improvement of domestic animals more particularly, than in the increase of the number of different objects entered for premiums since the first cattle show in 1817, which has been from 37 to more than 100—and this at the time and during a period in which three very respectable county societies have sprung up, full grown, in our immediate vicinity. It must be observed that when we speak of the number of entries, we do not confound it with the number of animals, which we are persuaded exceeded 300, and we should not be surprised, if they amounted to 500. This increase, while it must be gratifying to the friends of agriculture, (or which is tantamount) the friends of their country, like many other good things has its attendant evils. It renders the duties of those appointed to decide not only more laborious, but more painful and invidious. The labour may indeed, and must in future years be diminished by a division, unless men shall be expected to sacrifice their health to the object—but the other evil cannot by any possible measure be remedied.—The duty must be forever painful and invidious. Thus, for example, though you may have as many committees, as there are different descriptions of animals offered for premium, and it is obvious you cannot extend the division of labour beyond that point, still so long as you shall have, as the committee had this year, thirteen milch cows all of excellent quality to examine, and while they can only award three premiums—and so long as there shall be offered 23 heifers, out of which you are to select but two, the duty must be painful and invidious. For it is not to be disguised, that it is not the disappointment of not receiving a prize of 20 or 40 dollars which is the principal source of vexation, but it is the mortification of defeat—the humiliation of having formed extravagant notions of one's own animal; expectations encouraged by all one's neighbours who comparing our bull—or bull calf—or cow, or heifer with all those in the little world around us, have decided the question before hand, that we must gain, not the money, (for that is so contemptible,) but the honor and the victory. But

A field of Brighton soon dissipates these local illusions. There they see the pride of a hundred villages assembled—and we have no doubt, that if self-love and morbid hopes did not prevent the exercise of sound discretion, the candidates themselves would, in most cases, generally, magnanimously and patriotically award the prizes to their more fortunate competitors. These remarks are made with a view of presenting not merely to competitors, but to the public, the real and serious difficulties of such a mode of trial. Errors may be—may, must be committed by any judges however intelligent. The only thing in favor of their judgment is, that it is disinterested and well weighed; and after all, they do obtain something like the expression of public opinion, without consulting it, because they have an opportunity of seeing the throng of spectators around the favorite animals—they do in spite of themselves hear the verdict of the public, and though they endeavour not to be influenced by it, yet it would be to suppose that they are something more than human, if it could be pretended that these marks of public preference had no effect upon them.

This committee having under their cognizance and judgment the articles for which the show at Brighton was originally principally designed may be indulged in making some general remarks on the tendency, and effect of their exhibitions.—

It is not more than forty years, since the ideas were entertained in Great Britain, that a spirit and energy could be given to agricultural efforts, by associations, public exhibitions, and premiums judiciously awarded. The effects produced in that country, more especially

in the improvement of their stock have far exceeded the most sanguine hopes of the first promoters of this system. We have little and indeed no doubt, that the horned cattle and sheep of Great Britain were 50 years since, not superior to ours—we believe that the races of domestic animals imported from any part of Europe, not only do not deteriorate but that they improve in all the Northern parts of the United States. We believe that we have native animals of all descriptions, with the exception perhaps of the crosses of hogs with the Chinese breed, (which we have, however recently imported,) equal to any Great Britain possessed 40 years since, when Bakewell, Coke, Princeps, and an hundred other farmers, or opulent landholders in that kingdom, set about the patriotic work of improving their native breeds. They did not commence it by importations—They confined themselves simply to selection, and the effects were such as that in a few years, bulls, which of the best description at a former period might have brought 100 dollars, sold for 4500. This was no speculation of a visionary character, like the rage which prevailed with us for a short time in relation to Merino Sheep. It sustained itself, and exists to the present hour, so that a bull calf of certain breeds considered perfect, will bring from 200 to 400 dollars.

If we were asked the general character of our best shows of cattle compared to those at Smithfield on their anniversary show, or at Lewes, or many other places in England, we should say that it will require at least ten or perhaps twenty years for us to equal them.—Yet it is our firm conviction, that if we had never imported a single foreign animal, but had excited a strong zeal in our own country to select and propagate the best animals of native production, we should in the course of twenty or thirty years have been able to send animals to Great Britain to contend against their best raisers of stock for the first prizes. Nay more, we believe now, that if we could transport the best working Cattle of Worcester and Norfolk. (the latter however being all purchased from back counties) to Great Britain, they might challenge all the three kingdoms to compete with them in all the various points of labor to which cattle are applicable. These working cattle are, we know, as much superior to theirs as our stock is inferior to theirs in the article of bulls, cows, sheep and hogs. The fact, that we are so superior to them in this point of which we have no question, proves that we have among us an admirable but neglected race of animals—and the reason is obvious. Is a calf remarkably fat? Does he weigh 150 pounds at the end of six weeks, and that accompanied by an excellent form and proportions?—His fate is decided. He must feel the sharp knife of the butcher.—He must prematurely pay the forfeit of his uncommon and excellent qualities, and load the table of our epicures, who would have made a better dinner on a smaller and less valuable animal.

It may be reasonably asked then, why have you encouraged the importation of foreign stock? Why have you paid such liberal prices to those who have imported them? Our answer is very brief—and we hope satisfactory. It was done principally with the view of showing our farmers, what had been done in other countries in a short time by careful selection and cultivation. No man who ever saw Denton, Mr. Williams's bull—Fill Pail, Mr. Thorndike's, presented by him to the Agricultural Society—Colebs's, sent to our country by Mr. Coolidge—or Holderness, imported by Mr. Parsons, could entertain a doubt, that they were superior to any animals of the same description which we have ever seen. It was a short and conclusive mode of producing conviction: though equal care might in a few years have produced an equally improved native stock, yet the process would have been slow, and every lost year is of incalculable importance.

That these animals did produce a great sensation among our farmers, it is now needless to state. The simple fact, that farmers always so cautious of advancing their money, were ready to send their cows at five dollars, and even ten dollars to these imported animals, instead of fifty cents for the use of our native bulls, is conclusive.

But what is still more conclusive, because the facts we have now mentioned might have been the effect of fashion, of speculation, of imagination, is that when the progeny of these animals appeared at our shows, they attracted every eye, and commanded on an average four times the price of our native breed.

The effect has been so great as to cause the disappearance of our native breed of young animals at our shows, with a few exceptions.

It might however be remarked that our cows of the first premium, are still of domestic growth, and of most estimable qualities; so that we seem to possess all the advantages we could desire of availing ourselves of the perfection of the British stock, connected with females of excellent properties of our native breed.

We shall now proceed to announce the premiums. **FOR NATIVE BULLS.**

The committee award the first premium of \$40, to a bull raised by Mr Samuel Brooks, of Brighton, sired by "Holderness" the imported bull of Gorum Parsons, Esq. of Brighton.

The second premium to Stephen Patch, of Lincoln, 25 dollars for a native bull. This bull was the progeny of one raised by Payson Williams, who gained the first premium two years since, and is an encouragement to the preservation of our best native stock.

There were several other bulls which attracted the attention and held in suspense the opinions of the committee.

The most remarkable of these were a bull of the lion. Mr. Welles, from "Denton," the celebrated imported bull of Mr. Williams, of "Northborough;" a bull worthy of all praise;—

The bull of Mr. Prince, from "Holderness," from Mr. Prince's Alderney cow, imported and sold to Mr. Prince, by Capt. Tracy, of the London Packet.—

A bull of Joshua Coolidge, of Watertown, from the celebrated "Colebs."

Several native bulls of considerable merit, were also exhibited.

BULL CALVES.

The first premium for the best bull calf, was awarded to Charles Clark, of Framingham, 4 Fill Pail, and 3 native stock—\$15.

This case is worthy of notice—The animals produced by Fill Pail (Col. Thorndike's bull) have always discovered a strong resemblance to the parent. His qualities are excellent, but every farmer knows that you are not certain in crossing the breeds of retaining in the first cross the character of the original stock. Perhaps in the second or third generation you will attain the greatest degree of perfection, though you may fail of it in the first cross. The decided superiority of this bull calf is highly in favour of the progeny of Fill Pail, and should induce our farmers not lightly to give them up. There were many other fine animals from Fill Pail, such as Mr. Parsons's two heifers, offered for exhibition, and others which will be noticed hereafter.

The second premium for bull calves was awarded to Francis Amory, Esq. of Milton,—8 dollars.

This calf was out of "Colebs," and long held the committee in doubt as to his being entitled to the first or second prize.

A third extra prize, not originally offered or advertised, for a bull calf, was awarded to Samuel Cutler of Cambridge, 5 dollars.

This calf was out of "Holderness" and was in fine, perhaps too fine condition to be judged of fairly.

It is indeed important, that Farmers should know that their animals rather suffer than gain in our estimation and award, from being overfed and presented to us, unaturally fat.

There was an admirable Bull calf offered by Mr. Uriah Manning of Woburn, of the "Colebs" race, who would have taken a premium, but he was offered too late. He sold at 6 months old at our auction for 63 dollars.

There was a beautiful Bull Calf exhibited by Joseph Goddard, Esq. of Brooklyn, of our native breed, who would three years since have obtained one of our two

premiums, and we hope this race may not be neglected, but he did not appear to the committee quite equal to those, to whom the premiums were awarded.

There were also two beautiful Bull Calves exhibited by Dr. Chapin and Major Wheeler of Framingham.

MILCH COWS.

The premium for the best Milch cow, 40 dollars was awarded to John Stone of Marblehead, for his cow raised in Lynn.

His application was accompanied by written documents and satisfactory proofs, that his Cow had produced from the 1st of June to near the day of the Show from 12 to 9 pounds of butter per week, averaging 11 pounds through the whole time. It was the only case duly authenticated, and surpassed even the verbal statements, often loose, of the other claimants. The next year the Trustees will probably require affidavits on this subject from all claimants—because the properties of a Milch Cow can be but imperfectly known by inspection.

The second premium was awarded to John Prince, Esq. for a native cow—30 dollars.

The third premium for a Milch Cow, to Gen. S. G. Derby of Weston—20 dollars. This Cow was of the Alderney breed, imported by Benjamin Lee, Esq. of Cambridge.

It will be seen that we give high premiums to our excellent cows, because we believe they are the most important articles in the improvement of our stock. There was an admirable Alderney cow exhibited by John Hubbard, Esq. of Boston, imported by him, whose progeny, a fine Bull Calf, was generously given to the Society, for which he has received its thanks, and will receive those of every friend to Agriculture.

There were ten other distinguished Cows offered for premium. Those which the committee deemed worthy of particular notice among so many excellent ones were—a cow of the Hon. Mr. Welles of Dorchester—a young cow of Dr. Foster's, progeny of the Cow which obtained a premium three years since, and an admirable animal—an excellent cow of Maj. Wheeler's of Framingham, which would have been classed with those entitled to premium, if he had not with great frankness very honorably expressed his doubts, whether she was raised *within the state*, which is one of its indispensable conditions. This example of Major Wheeler deserves our thanks. There ought never to be an attempt to evade our rules.

Mr. Luke Fisk of Waltham, a well known and successful candidate for our premiums, and highly deserving our notice as an intelligent cultivator, offered an excellent cow, but he had owned her for so short a period as not to permit us to award any premium.

There were several other excellent cows, particularly those of Mr. Brigham, Mr. Sparhawk and Mr. Huntington, but the weight of evidence decided the committee in favour of those selected.

FAT OXEN.

As to Fat Oxen, the Show was comparatively meagre. We do not at all refer to the inferiority of the animals offered, though we have undoubtedly had better in some years. From fourteen in number we have fallen to four. Whether this is to be attributed to the season, or the market, or both, we cannot determine. We have in deciding these premiums followed one fully and deliberately settled rule, to give the premium to the best animal on the whole, without regard to weight.

We therefore awarded the first premium for fat oxen, to J. Hubbard of Hatfield, 50 dollars—weighing alive 2305 pounds.

The second, to Stephen Howe of Petersham, 40 dollars, weight of his ox, 2460 pounds.

The third, to Asa Rice, jun. of Shrewsbury, 30 dollars. For an admirable and extraordinary 4 year old steer, weighing 2065 pounds.

HEIFERS.

The first premium for Heifers, among 23 animals of this class, was awarded to Moses Coolidge of Watertown, 15 dollars.—The heifer was of the Colebs breed.

The second, to Dr. James Prescott Chapin of Cambridge, premium 10 dollars—we believe of the Fall fair award.

The heifers most distinguished not admitted to premium, were Mr. Abner Wheeler's, two heifers of native breed of excellent forms and qualities—Mr. Parsons's, offered for exhibition only—Maj. Jacques' 2 heifers of the Gelb's breed—Hon. Mr. Welles's, of his well known excellent stock.

The Society moreover granted as a gratuity to John Badger of Natick, 19 dollars for an exhibition of three very tolerable heifers, produced at a birth, tho' not of themselves in other respects entitled to premium. They are now near two years old, almost exactly alike, and his desire to gratify public curiosity merited some remuneration.

In conclusion, the Chairman of this committee must express his regret, that he was not able to present at the meeting at Brighton a written report, in which he could have done justice to all the competitors, and that in a hurried and confused statement from memory, fatigued and exhausted as he was, and unaccustomed for many years to public speaking, he may not have done justice either to the Trustees or the Competitors.

JOHN LOWELL, Chairman.

AN AGRICULTURAL CURIOSITY.

(Omitted in the Official Report.)

At the late Cattle Show at Brighton, there was a heifer of the "Galloway Breed" without horns (from the south-west part of Scotland originally) exhibited by Mr. David Fisher, of Wrentham, which, though she did not equal those to whom premiums were awarded, was very remarkable for her precocity, or early bearing and fertility. She brought her first calf at one year and five months and 11 days old; her second at 2 years 3 months and 28 days, and was now again a third time with calf and nearly three months advanced in pregnancy, being less than two years and nine months old. This we believe is without example.

The old opinion was, that heifers should not be permitted to produce till they were three years old. This is now generally expressed in Europe, and is growing out of fashion in our country. It is certain that the two calves of this two year old heifer must have paid for her raising—and the cows though smaller are said to be better for milk, when thus permitted to take the course of nature, a tolerably good instructress, in all things relating to farming.

Roxbury, Oct. 12.

J. LOWELL.

SWEET POTATOES

Cultivated in Massachusetts.

Any Farmers intending to supply the Boston and Salem markets, and any cultivators, who may be disposed to make experiments in horticulture or gardening, will be supplied gratis with the slips of the sweet, or Carolina Potatoes raised in this state, (on condition of their agreeing to attend to the cultivation of the same) by applying to the subscriber at any time within 14 days. He will also furnish them with minute instructions both as to their preservation and culture.

For three years running, he has raised them with a success that authorises him to believe that they may be perfectly naturalized in our state. In the two last years they were as dry and as sweet as those imported from the southern states. This year they are far inferior in

quality though as abundant in quantity, and this is to be attributed to the unusual quantity of rain and the coldness of the season. This plant is more impatient of moisture than any other vegetable cultivated for the table, and it prefers the lightest, and most sandy soil.

They demand no greater labor or care than other plants raised for market, though they require a strict attention to certain rules which are neither expensive nor difficult. The produce with tolerable attention is fully equal to that of the common potatoe—and they are admirable food for cattle. It is not however a potatoe, though it bears the name. There have been some so ignorant of the plant, as to believe, that it is converted into the sweet potatoe, from the common potatoe by transplantation from a northern to a southern state.

JOHN LOWELL.

Roxbury, Oct. 15, 1821.

The Gravel.

The excruciating sufferings sustained by persons afflicted by gravel in the kidneys, &c. induced me to communicate a remedy which has, in numerous instances afforded relief.

This remedy was discovered and its efficacy first tested by Dr. Williams, a late eminent physician in Virginia.—He had for several years suffered extremely by gravel.—As an experiment, Dr. W. put a small quantity of the gravel which he had voided into three wine glasses, one containing gin, a second containing a solution of lime, (lime water) the third glass containing pure strong coffee. After waiting a few days, on examination, he found that the gravel deposited in gin, was not, in the slightest degree altered—that deposited in lime water appeared a little softened; that deposited in strong coffee, was reduced to an impalpable powder.

Encouraged by this experiment, Dr. W. immediately adopted the use of pure strong coffee not mixed with sugar, milk or any ingredient. In a short time he voided gravel reduced to sand, with little pain and was relieved.

The above important facts were stated to me by a respectable physician, who has administered this remedy with similar success. I. M.

(Observations on the above.

If Dr. Williams has not been deceived by any natural changes for the better in the morbid viscera, the above becomes a fact of great importance in two points, with regard to the system. First, as to its morbid state.—It should always be tried, and not discouraged, because it does not always answer, for there are five or six different compounds, that compose stones in the bladder, and even to conquer one species is a great blessing and discovery. Secondly, as respects the healthy state of the body.—For if it has such solvent effects on accidental bodies, it surely may be too much for the lime in the human composition, and therefore we should discard it, as a poison from our diet. S.

FOR THE AMERICAN FARMER.

"Every Tub on its own bottom"—or
"Honour to him, to whom honour is rightfully due."

MR. EDITOR,

When I first saw the engraving you gave us in the American Farmer, of the "Patent Dou-

ble Shovel Plough," a smile of surprise was excited, at finding that simple implement which has been in uninterrupted use for the last thirty years, in the adjoining county of Spotsylvania, twenty of them to my own knowledge, should have been just started as a new invention, and according to custom, entrenched behind patent rights. Now as I am one of your plain old fashioned "Let us alone" Agriculturalists—an enemy to shackles of all sorts, from the custom house to the patent office, and deeming it, moreover, an act of sheer justice to the agricultural community at large, I will put them in possession of some facts appertaining to this patent plough. I had noted the subject at the time for a communication to you, but ill health and other causes had caused me to forget it until in an excursion during the past summer in the valley of the Shenandoah, the subject was recalled to my recollection, by learning that patent rights to construct the said plough were vending in that section of our state. I therefore now avail myself of the columns of your Journal to state that the Double Shovel Plough constructed upon principles precisely the same as the one now pretended to be patented, has been to my own knowledge, in uninterrupted use within twenty miles of the place of my residence in the county of Spotsylvania, for the last twenty years. The forked limb of a tree, which most probably suggested the first idea of the plough, afforded a simple but rude beam for both of the Hoes, and is I believe used to this day by a majority of those persons who use the plough. Fifteen years ago I had some constructed for my own use, and to give greater durability to them, I had the beams made of separate pieces of maulled and dressed timber, put together precisely in the same manner as the one of which you have given us an engraving. After using them two or three years, and finding that the Shovel Plough under all its modifications, single and double, exposed our lands to wash in a greater degree than any other plough under the up and down hill mode of cultivation then in vogue, they were finally laid aside by me, and the shovel hoe harrow substituted in their place. The greater depth, however, which we now give to our ploughing, together with the horizontal mode of cultivation, will I have no doubt, for many purposes, render the use of the Shovel Hoe Ploughs, single and double, both admissible and advisable.

—As far as I have been able to trace the origin of the Double Shovel Plough, the invention is due about thirty years ago to a man by the name of Moses Perry, in the county of Spotsylvania.

Respectfully yours,

DABNEY MINOR,

Wood Lawn, Orange co. Va.

October 15th, 1821.

FOR THE AMERICAN FARMER.

REMARKS

Upon the Habits, Depredations and great increase of the WEEVIL; with some suggestions as to the means of getting rid of this pest.

Esteemed Friend,

Many opinions are entertained by farmers—

respecting the common Weevil. This insect sometimes so injurious to grain in barns, mills and other places of deposit, becomes very destructive to our crops, if we put these into houses or places already infested. The ravages of the weevil are not confined to wheat and rye, for they are peculiarly fond of barley, and they will even feed upon some kinds of grass seed.

Many farmers who have severely suffered by them, were so little acquainted with the period of their propagation, as to have believed it to take place in the field, by a deposit on the grain whilst it was in a green or soft state; and therefore, without making any attempts to extirpate them, quietly submitted to the loss of a great portion of the annual product of their farms, after housing it—a loss, which in most cases, I believe was really ascribable to their having put their crops into barns previously infested by the weevil, and there keeping them many months, or until the winter's frost brought a suitable time to thrash or tread out grain.

I shall therefore now endeavour to cast what little light my experience and observation may enable me to throw upon this subject, and I hope that others, who may have been more observant of this insect than I have been, will supply its deficiency.

I have for a number of years been in the practice of receiving grain into a mill from the neighbouring country, without any discrimination, sometimes for the owners use, at others for my own account, and the weevil being introduced in some of these parcels, soon caused the whole then in the mill to be infested, and great havoc to be made, before I was aware of the extent of my danger. And in order to get rid of them, I had finally to stop receiving grain, until I had manufactured all that was then on hand, and made a general clearing out of every material that could afford them shelter. I then learned that they will harbour in chaff, or dust of grain although it affords but very little or no food—that they become torpid in frosty weather and revive as it gets warmer. When they were torpid with cold, I have placed them under the warming beams of the sun, in the midst of winter, and they revived. I have seen them, on the same day alternately exposed to heat and cold, repeatedly become so torpid as to be apparently lifeless, and then revive without having sustained any obvious injury to their animal functions.

From such observations we may fairly conclude, that they cease to injure grain during cold weather, and that they become destructive again in the spring. They deposit knits in the grain which they infest, and the young insects begin to feed when very small. They work and live on the farinaceous part of the grain, until they have so far consumed it as to leave only the shell or hull of bran; and this nearly perfect, and as light as chaff; and whoever puts his crops either in the straw, or after they are thrashed, into places already infested by the weevil, will find that this work of destruction will proceed, save only when the weather is so cold as to render the insect torpid.

I have seen crops of wheat, that had been put, when in good order and soon after harvest, into barns infested by the weevil, and there kept

nearly until the next harvest, so much injured by their depredations that upon fanning it preparatory to grinding, large portions were blown out, being nothing more than hulls or the outer coats, so excavated as to have lost all of the flour which they formerly contained.

And I remember some facts connected with my receiving a small crop of barley into my mill, which very pointedly sustain the opinion that the weevil will continue their depredations and increase in numbers without regard to the period of the year, if they occupy a situation that is warm enough for them to work in. In the fall of the year, about the 10th or 11th month, and a few years past, I received some barley, and discovered some chance grains among it that had been perforated by the weevil, but were not injured. At that time, the owner had thrashed and cleaned up more than he could bring in his wagon, this he put into bags and set them in an upper apartment of his dwelling, until he had another load thrashed out, and which happened sometime in the winter. He then sent what was in the bags to mill, together with the parcel more recently thrashed; and whilst the mill elevators were hoisting this part of the grain to an upper story of the mill, nothing amiss was observed, but when that was emptied from the bags, which had been reserved from the first load, the elevator buckets became clogged with it, the operation of hoisting ceased, and upon examination we found so much of this grain had been reduced to a state of chaff by the weevil, as to render it so unfit for feeding into the buckets of the elevator, as to choke up the passage. Further enquiry proved that this barley had remained in bags, in an upper room which the kitchen fire below had made sufficiently warm for them to continue their operations from the time when the first load came to mill, so that in the course of two months the weevil had nearly destroyed what was in the bags, whilst that which was in the barn was by reason of the cold but very little more injured than the first load was; and I believe that the small parcel which was so much injured would have been entirely destroyed, if it had been left a little longer in the same warm situation which it occupied during these two months of winter, because the weevil had increased surprisingly in numbers and would no doubt have still continued to multiply.

I should have felt some alarm on account of this parcel of infested grain having been thrown upon a large quantity that was sound, then in my mill; but as the weather was now cold, and would continue so, long enough to afford me time to manufacture nearly all that I then had on hand, I felt no other uneasiness at the occurrence than what arose out of the necessity which it imposed upon me of repeatedly cleaning my mill and removing every thing out of it that would afford these insects harbour; this I did, and thereafter I was very cautious not to receive any more infested grain unless I could immediately manufacture it.

The weevil eaten grain that has fallen under my notice, was almost uniformly brought from barns that had been infested for some time, by this destructive little insect. Some barns that were built in early times, when cellaring or stab-

ling under them was not in fashion, and in which the thrashing floors of course lay near the ground, I have known to be infested by the weevil for years past, and so they will no doubt continue to be much longer, as it would be very difficult to clear away the rubbish that has been collecting during many years beneath their ground floors, where it now affords a good shelter for such vermin.

A barn of this description and in this neighbourhood, has been so infested for many years, that the owner of it has lost a considerable portion of his grain every year, when he did not thrash it soon after harvest, and have it immediately removed. And long experience has taught him, that this loss cannot be avoided by thrashing his grain and removing it to a granary, if it had been left long enough in the barn to permit the old weevils to deposit their eggs among it, for these go with it and soon commence a work of destruction, which can only be arrested by cold or the manufacturer. When they remove or travel, they go, generally on foot; but they fly occasionally. I have seen them of many sizes, from the smallest insect visible to the naked eye, up to a full grown weevil, so large that they could not cover themselves in the hull of a common sized grain of wheat. And I have remarked that they prefer to work near the surface of a heap of grain during warm weather, where they have free access to the air.

I have found them to be more partial to barley than any other grain, and to prefer this when it has the hull on, although they will penetrate the grain when the outer chaffy coat has been taken off by the mill, and scoop out all of the flour, leaving nothing but a shell of bran. I have had casks of barley, that stood for some time unnoticed, in remote parts of my mill, so eaten by the Weevil that I do not believe there was an ounce of flour left to one hundred pounds of the original grain. But when barley has been pearled, that is to say, had its inner coat or the bran taken off, so as to leave only a round farinaceous kernel, they have not meddled much with it whilst the other was near at hand, yet they finally resorted to it, although it was in casks when the other was removed.

These circumstances seem to prove that they give a decided preference to the more saccharine parts of grain, and that they have an instinctive disposition to form to themselves a covering or protection by scooping out the inside; indeed, they will remain within the hull until perfectly cleared not only of its flour, but likewise of the inner parts of the bran, which abound with saccharine matters; nor leave it until it is thinner and lighter than the best artist or miller could make it. I have made these remarks to shew some of their propensities and habits, and I wish that it was in my power to inform your readers, how they could infallibly get rid of this insect and prevent its return: one method has been generally resorted to in this neighbourhood, and as it is reputed to be effectual in driving them from our buildings, I will mention it, and so far as my own experience goes I may add, that I cannot point out a better practice than this common one, here, of letting the poultry on the farm have free access to the barn, after you have removed every

harbour from it for the Weevil, and sprinkled a little grain so as to give the poultry a desire to search the building. They are as fond of the insect as of the grain, and they will devour them with equal avidity as soon as they discover them. Indeed, when they have been swept out of the mill I have seen the poultry prefer them to the grain itself. These facts seem to admonish us no longer to consider it an insurmountable task to get rid of such vermin, as industry and cleanliness might overcome them.

It will be necessary however to the success of our efforts, that we use the utmost vigilance and an unsparring hand; and when we have succeeded, we must take unceasing care lest they be again introduced upon our premises; of which I became fully convinced by the following circumstances. A very respectable farmer once informed me that had just had his barn cleaned out, and all of the Weevil which could be swept together, carefully carried into an adjacent field expecting that they would not return; but at after a little reflection he became apprehensive and went towards the spot to observe their movements, when to his astonishment he found them all moving regularly and in a right line towards his barn, as if they possessed an instinctive knowledge of the course by which they might regain their former situation; hence it is that I have remarked that, we ought unsparingly to destroy all that we can collect of them—And in support of the other suggestion, I will now state a fact as clearly in point.

Once observed the effect of Weevil upon some grain brought to mill by a neighbour, who had but lately improved and built upon his patrimonial estate; and as all of his buildings were entirely new, I was surprised to see such depredations on his grain, especially as he had made a cellar under his barn, and therefore I particularly enquired into their origin. He told me that he could readily account for the existence of the evil, which he directly traced to the circumstance of his having permitted a neighbour to bring a few bushels of seed wheat to his barn to be cleaned by his fan, as it was a better one than his neighbours, and that he afterwards discovered that this grain was infested with the Weevil, all of which were, by the operation of fanning left in the barn to his great injury, as he had not yet been able to get clear of them and their off-spring. And that diligence, cleanliness, the assistance of poultry and unceasing vigilance would rid us of such pests: I think we have also a right to conclude from the following fact. A farmer who had for many years brought from some distance Weevil-eaten grain to my mill, subsequently brought his grain in a perfect condition, which led me to enquire how it then happened to be free from the marks of that insect. He replied that this was easily explained—his Barn had been accidentally burnt to the ground—and his new one was not infested by his old foe.

Let the industrious and vigilant farmer be encouraged by these facts to persevere in his efforts to extirpate the Weevil on his premises, by the easy means which I have recommended to the adoption of all, and which have been so useful to several of my neighbours and by which

I have profited myself. This means I will now repeat.—*As often and as long as you find it to be necessary, clean out your buildings thoroughly—move from them every parcel of grain and every vestige of straw and chaff which could harbour these insects—frequently enter your poultry, especially your dung hill fowls to search for them in your buildings, by strewing a little grain to attract them in the first instance, and you will soon find them as sharp sighted to discover the Weevil as the grain—in truth it is difficult to tell which they really prefer, as they will generally take both, although I have frequently seen them eat the Weevil and leave the grain—and finally, let every one constantly beware least this destructive insect should be carelessly brought upon his premises. By a partial observance of these recommendations, I have greatly diminished their numbers in my mill, although it has not at any time been free from them since they were first introduced, but this I am inclined chiefly to attribute to their being among several parcels of grain subsequently admitted.*

Farmers, however, have not to contend against or submit to, this manner of increase, as Miller's have; and therefore, I believe they might get entirely clear of them.

The foregoing observations were written about twelve months since, but I did not send them to you before now, because I hoped that some one who could do justice to their subject, would ere this have taught us through the medium of your journal, how to get rid of this destructive insect with certainty and greater ease. Disappointed in this expectation, and wishing to call the attention of others to this evil, I determined to send these desultory remarks to you for publication a few days since, when upon fanning some wheat of a neighbour's which he had kept one if not 2 years in hogsheds, I found among others of various sizes, the largest weevil that I ever saw, and which I now send to you; and which, by comparing it with some others that go with it in the phial, may from its very uncommon size, convince you as it has satisfied me, that they live for several years. When I first saw it I could scarcely believe that it was an individual of the common species; but upon making further search among the fannings of that lot of grain in which it came to mill, I perceived many more very similar to it mingled with others, from their own size down to the smallest object which the naked eye could distinguish as a living animal.

Mysterious as I confess their origin to be, still I am settled in the opinion that they never attack grain in the field, but resort to it only in places of deposit; here, however it matters not whether it be in the straw, or in its thrashed and clean state; and I have remarked that they always prefer the most sound and mature grain. Large farmers, who tread out their crops early and in the field have not much to dread from this insect, unless they attempt to keep their clean grain on hand; but smaller farmers, who usually house their crops and thrash or tread out their grain in their barns, and who generally leave it to be thrashed during the winter, are the persons who suffer the most by the weevil by the time that they are ready to thrash it,

such of their grain is perforated, and has in it his destroyer, ready to entirely consume the most valuable portions, if the parcel should happen to be afterwards left in a warm and quiet situation. Indeed, I have known a large portion of the grain raised upon a farm, I think fully half the crop, eaten up by weevil, in the course of a few months, after being put in good order, into an infested barn. And waste is often going on undiscovered, that might be arrested by sending the grain to be manufactured; and of which, the owner might have been apprised, if he had carefully inspected his grain from time to time, as he then would have observed that much of it, although very slightly punctured, still contained the weevil, notwithstanding few or none of those insects were to be seen moving in the heap or on the mow.

I have been the more full, or perhaps I should say tedious on this subject; because I know that many farmers are very unsettled, if not very erroneous in the opinions which they entertain concerning the weevil. And for their benefit, as well as my own I have hoped thus to induce some of your correspondents to throw more light upon the matter.

What I have stated as facts in the foregoing are strictly true, if my researches have not deceived me, and these have been directed by my interest, always greatly involved therein during many years,

Thy friend,

CALEB KIRK.

Brandywine, 3d of 10th mo. 1821.

Copied from the National Gazette.

CURIOUS FACTS.

From the Transactions of the Royal Society of London for 1821.

On the Black Rete Mucosum of the Negro skin being a defence against the scorching effect of the sun's rays. By Sir Everard Home, Bart. F.R.S.

To ascertain the use of the black colour of the rete mucosum in the negro, has occupied the attention of many physiologists; and I confess that this subject formed the first investigation in which I ever engaged. Fruitless, indeed, were my attempts; and when I learnt that black surfaces absorbed heat, and raised the temperature several degrees beyond any others, I gave the matter up in despair. Two years ago my attention was again called to this inquiry, upon being told by our late excellent President, that a silver fish, in a pond at spring Grove, during a very hot summer, immediately after some trees by which the pond was shaded were cut down, was so much exposed to the sun's rays as to have its back scorched, the surface putting on the same appearance as after a burn, and rising above the scales of the surrounding skin. I saw the fish several times, and directions were given to send it to me when it died; but I was not so fortunate as to receive it. This extraordinary circumstance brought to my recollection one not less so. In crossing the Tropic in April 1781, at twelve o'clock at noon, on a voyage to the West Indies, I had fallen asleep upon deck, lying upon my back, having a thin linen pair of trowsers on, and I had not slept half an hour, when I was awakened by the

bustle attending the demand of forfeits on crossing the Line and found the inside of the upper part of both thighs scorched, the effects of which have never gone off: but till now I could not imagine how it happened, always suspecting it to be the effect of the bites of insects; but I never satisfied myself upon that subject.

The effect of the sun's rays upon the fish under water, led me to suspect the mixture of light and heat to be the cause of this scorching effect.

To ascertain the truth of this opinion, I made the following experiments:

Exp. 1. In August 1820, I exposed the back of my hand to the sun at twelve o'clock, with a thermometer attached to it, another thermometer being placed upon a table, with the same exposure. That on my hand stood at 90°, the other at 102°. In forty five minutes blisters rose and coagulable lymph was exuded, which became vascular under my eye: the pain was very severe.

Exp. 2. I exposed my face, my eyelids and the back of my hand to water heated to 120°: in a few minutes they became painful; and when the heat was further increased, I could not bear it.

Exp. 3. I exposed the backs of my two hands to the sun's rays, with a thermometer upon each: the one hand was uncovered; the other had a covering of black cloth, under which the ball of the thermometer was placed. After ten minutes, the degree of heat of each thermometer was marked, and the appearance on the skin examined. This was repeated at three different times.

1st time the thermometer	
under the cloth	91, the other 85
2d time	94 91
3d time	106 98

In every one of these trials the skin was scorched that was uncovered: the other had not suffered in the slightest degree; there was no appearance of perspiration on either hand.

Exp. 4. The back of a negro's hand was exposed to the sun with a thermometer upon it: the skin had not suffered in the least.

Exp. 5. During the eclipse of the sun of September 7, 1820, I exposed the back of my hand to the rays concentrated by a double lens of half an inch focus, at three different periods of the eclipse. When the heat of the thermometer was 75°, that is from 47 to 57 minutes past one o'clock, the concentrated rays felt warm, but gave no pain, although applied for ten minutes.

When the heat to a thermometer was 79°. that is at 15 minutes past two o'clock, the concentrated rays at four minutes gave pain: in five minutes blistered the skin, and produced spots or coagulable lymph which became vascular under the eye.

When the heat to a thermometer was 82°, that is at half past two o'clock the concentrated rays in three minutes gave pain: in four the part was blistered and the pain could no longer be endured.

Exp. 6. September 8, 1820, at eleven o'clock the heat in the sun 90°, the concentrated rays applied to my naked arm produced a vesicle.

This experiment was repeated when the heat was 84°, and in seven minutes a blister formed on the arm.

Exp. 7. September 9th eleven o'clock, the thermometer in the sun at 90° the concentrated rays applied to a piece of black kersey mere cloth made tight round my arm 12 minutes, gave no real pain, and left no impressions whatever on the skin; although the nap of the cloth had been destroyed.

This experiment was repeated with white kersey mere, the heat at 86°; in 15 minutes a blister was formed.

Repeated with Irish linen, the thermometer 86°. In 15 minutes a blister was formed, and coagulable lymph thrown out, which had become vascular.

The same experiment was made with a white ba-dkerchief louse upon the hand, the heat 83°. In 15 minutes an inflammatory blush was produced over a surface of several inches extent, which almost immediately disappeared on withdrawing the hand from the sun's rays.

Exp. 8. September 12. The sun's heat at noon 85°. The concentrated rays applied to the back of the hand of a negro from Grenada, for 15 minutes, produced no visible effect, at the first moment he felt a stab going inward, but that went off, and afterwards he had no pain.

From these experiments it is evident that the power of the sun's rays to scorch the skin of animals is destroyed when applied to a black surface, although the absolute heat, in consequence of the absorption of the rays is greater.

The same wise providence which has given so extraordinary a provision to the Negro for the defence of the skin, while living within the tropics, has extended it to the bottom of the eye, which otherwise would suffer in a greater or less degree when exposed to strong light; the retina, from its transparency, allowing it to pass through without injury.

That the nigrum pigmentum is not necessary for vision, but only provided as a defence against strong light, is proved by its being darker in the Negro than the European, and being of a lighter colour in fair people than in dark, and therefore lightest in those countries furthest removed from effects of the sun.

In the Monkey it is dark, and in all animals that look upwards.

In all birds exposed to the sun's rays, the nigrum pigmentum is black. In fishes—the bask ing spark, which lies upon the surface of the ocean, has a nigrum pigmentum. The turbot and skate which lie upon banks of sand and in shallow water have nigrum pigmentum.

In all ruminating animals and birds of prey, there is a lucid tapitum at the bottom of the eye.

The owl that never sees the sun, has no nigrum pigmentum.

The mackeral has the bottom of the eye lucid as quick-silver.

The *comp de soleil*, met with in the West Indies, the effects of which I have seen, I attribute to the scorching effect of the sun's rays upon the scalp.

The Egyptian ophthalmia I consider to be the effect of the sun's rays, and the glare of reflected light.

I have stated the fact of the scorching power of the sun's rays being destroyed when they are applied to black surfaces, but have not gone further. Sir Humphrey Davy, to whom I showed these observations, immediately explained it. He said the radiant heat in the sun's rays was absorbed by the black surface, and converted into sensible heat.

THE FARMER.

BALTIMORE, FRIDAY, OCTOBER 26, 1821.

The next Cattle Show.

WE are authorized to announce that the second AGRICULTURAL FAIR AND CATTLE SHOW will be held under the direction of the Maryland Agricultural Society, on the fourth Wednesday in May next. The reason for appointing that day was the consideration that then the season for planting corn will have passed, and the still more busy and pressing season of Tobacco planting will not have arrived. It was decided to have an exhibition in the Spring, because if it had been delayed until next Autumn, the interval would have been too long between that time and the Exhibition in June last—but it appears to be the general impression that the third Cattle Show will be held about the last week in October next, and that thereafter there will be but one, and that one in Autumn. The necessary arrangements will be made under the superintendence of the Committee of Arrangement, of which Gen. Charles Ridgely, of Hampton, is Chairman.—In due season it will be determined for what objects the premiums will be awarded, and early and ample notice will be given to the Farmers of Maryland, to enable them to prepare for the interesting conflict—whereof the object will be to try "who shall do each other the most good."

The prices of Flour and Wheat, have risen suddenly—and in consequence of late news from Europe and as they are still improving, the quotations of this day will probably be found lower than the prices of tomorrow.—Flour has to day been sold at \$7 pr. bbl. and \$7½ were since offered and refused.—Sales of Wheat have also been made at \$1 50 to 1 55 cents pr. bushel.—Other kinds of grain will no doubt rise in proportion. October 25, 1821.

PRICES CURRENT.

Whiskey from do. 30 cents exclusive of bbl.—Hay, pr ton 12 a \$14—Straw do. \$8—Live Cattle \$3 a 6—Codfish, per quintal, wholesale, \$3, retail 3 50 a \$4—N. E. Beans pr. bushel \$1 13—do. P. as, 75 cts—Prime Beef, \$2—Prime Pork, \$10 11—Mess, \$15—Plaster in stone \$6 pr ton—do, Ground, \$1 37 3 pr barrel, 33 cts, per bushel, \$8 per ton—American White Lead, \$12 50—Ground do. 13 a 14—Lansed Oil, 75 cents—Feathers, 40 a 45 cents—Shad, new, \$6—Herrings, \$2 a \$3 25, declining—Fine Salt, 45 cents per bushel—Ground Alum do. 53 a 60—St. Uves, 60—Codiz, 50 a 55—Turk's Island, 75—Beef, prime ps. 8 a 10 cts—Hams, 10 a 12 cts—Middlings, 1 cts—Butter, 23 cents—Eggs, 12 3 cts. per dozen—Cheese, 8 a 10 cts per pound.

NORTH-CAROLINA STAPLES.—Tar \$1 75, cargo price, plenty Turpentine, soft, \$2 25 a 2 37 do. Hard, \$1 75 a 1 87—Spirits Turpentine, 30 cents—Varnish, nominally, 25 cents, no sales—Rosin, \$1 25, nominally, no demand—Pitch scarce, \$2 25—Cotton, upland, 15 a 18 cents—Louisiana, 16 a 20—Alabama, 14 a 16 cents.

No sales of Tobacco this week.

PUBLISHED BY JOHN S. SKINNER.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua est bona norint
"Agricolae." Virg.

VOL. III.

BALTIMORE, FRIDAY, NOVEMBER 2, 1821.

NUM. 32.

AGRICULTURE.

From the London Farmer's Journal.

HOLKHAM GRAND ANNUAL SHEEP-SHEARING MEETING, &c.

(Continued from page 242.)

SECOND DAY.

The morning of Tuesday presented the same scene in front of the Hall; namely, the children breaking and spinning flax and hemp. To reduce the latter, they first used the common *brake*, which (as the hemp was somewhat fine in the stalk, and in a highly dried state) shattered and discharged the *bun* with more facility than might have been expected. No part of Holkham Park, or its neighbourhood, is adapted to the growth of hemp; but of flax, by skillful management, the crops are very pretty, and much better than in many other places where the land is greatly superior. While we are on this topic, we beg leave to suggest that all the flax which is spun for ninen, ought to be bleached in the dressed state before spinning, which would make the fabric much better; because the mucilaginous and colouring matter which adhere to the fibres, must otherwise be dissolved and washed away from the web, which weakens the texture of the cloth. It appears to us also, that the volunteer superintendent (the indefatigable and worthy Mr. Herod) has not fully learned the process of blacking, or boiling, and afterwards again dressing the stuff, to bring it into that beautiful state in which it is rendered by Mr. Bundy: not but that he makes it do very well for ordinary purposes; but a great recommendation of a novel process, is the beauty and perfection of the workmanship. We cannot but omit to pay a just tribute of applause to the amiable patroness under whose direction this most humane and exemplary undertaking has proceeded. We were cautioned not to mention her name, which undoubtedly must be ascribed to those retired and unobtrusive traits of character and disposition which ever more distinguish pre-eminent talents and virtues; but we confess we are strongly tempted, and find ourselves on the very brink of disobedience. We, however, "Keep the word of promise to the ear," and leave it to our readers to appropriate this feeble eulogium to her who, of all creatures of mortal mould, seems to approach nearest to the angelic nature.

The morning scene, in the front of Holkham Hall, is evermore a most exhilarating and delightful precursor of the rational pleasures of the day: an immense assemblage of the nobility and gentry, with men of learning and science, and intelligent men of business from all parts, form a conversation altogether unique. Some are formed into groups in earnest talk; others busied in identifying public characters; others anxiously inquiring after the several objects in view. There is one lecturing on grasses; there is another with a bottle in his hand, supposed to contain a curious oil for the foot-rot, or a foreign liquor by way of pocket pistol.—No; it is filled with turnip flies, caught by the ingenious Mr. Paul. There is a man with a nondescript weapon, or some strange implement; he looks like a pioneer in this peaceful army. Pray what is he carries? "That, sir, is called a *graminator*." There is another with a wheel—Does he act the part of Fortune in this demi-masquerade? "Not at all; it is nothing but a *berambulator* upon a new construction; he will explain it to you in a minute, how it

shws the pates, turlongs, and mils, in a most simple and certain manner. Fixed to the side of a gig, and operated on through apparatus attached to the wheel, it becomes a travelling companion." Divided from these by an iron trellis, are carriages and horsemen, who continue to arrive to join in the cavalcade; and when Mr. Coke signifies that it is time to set forward, there is a most lively and irregular bustle to mount: the scene represents an army of routed cavalry, wherein you might figure to yourself here and there a *Richard*, calling "A horse! A horse! my kingdom for a horse!"

The first object in the business of this day, was the prize South Downs, which are exhibited in the Sheep-Yard adjoining the Shrubbery: the show was numerous and excellent. In this place was exhibited a curious screen invented by Mr. Beeton, of Wexley, for the purpose of taking out the rough and jagged seeds of hairflax and wild oats. In countries where these are prevalent and mischievous, either from soil or deficient husbandry, it had occurred to many persons that such seeds might be abstracted from the corn, by means of shaking the quantity in something to which they would adhere. Mr. Beeton has thus constructed a screen, through which the corn passes over a flannel, which is put in motion by a crank and roller; and in returning below, the seeds are scraped off by two smooth edged wooden knives against which the flannel is pressed. We cannot here bestow more attention upon it; it certainly takes out many of the seeds; but a gentleman who looked attentively at the process, said, "Prevention is better than cure."

Leaving the Sheep-yard, the company, amounting to near 600, viewed the parts of the Park adjoining, which had been inoculated within two or three years, as also the parts from which the soils were taken. The latter were perfectly united, and no trace could be found of the turf having been cut up, although it is now the practice to take half the sod away; that is, to take away a sod of five inches and a half, and leave a like one standing. Considering that the space operated upon seldom extends to more than two or three acres, in one year (and generally less,) it could be no great difficulty to have twenty loads per acre of good mellow compost to spread upon the land so stripped; if this be done, the part operated on is greatly improved instead of being injured; and even without it, if the soil be naturally deep, and rather of a dry nature, and liable to be mossy; because in this case the grasses acquire a renewed vigour, and recovering from their hide-bound state, cover the surface with improved verdure; the remaining sods are pressed down on approaching winter, and in spring with a heavy roller. We could find among the company some traits of scepticism still on these points, but they are fast wearing away by the facts that are shewn.

The company were then led to the village of Holkham, where all eminent strangers are so much astonished and delighted; a number of whom minutely inspected the cottages, and others admired the gardens. Our repeated description of these may appear somewhat long, but, in sober truth, the great mind which promotes all this, is only the most perfect copy of that intelligence which provides for the whole family of his creatures. Were not his gifts intercepted by the mistakes or defects of human nature, why should not every village be like the village of Holkham? Every year buildings are erected, and the visitors see evidences of their progressive increase in their dates in front. This year a public school is building, that nothing may be wanting to the morals of the people. Every

* Tongue weed; scratch weed; goose tongue, clivers, &c.—In Botany, GALEAN

year improvements are made, uniting convenience, taste, and comfort. Since our last visit, a road has been opened through the marsh, which shortens conveyance, and throws open to the village a view of the sea. The gardens exhibit the very last degree of neatness, and may be compared for cleanliness and order, to a parterre which is managed by the nicest hand.

The next scene was the experimental patches of objects newly introduced. Such is the desire of reputation and publicity for every projected improvement, that the inventor, whatever be his quality or condition, mounts his hobby and rides to Holkham; and such is Mr. Coke's kindness, as well as public spirit, that stalls are provided for them all, and there they are found, side by side, at the next meeting. Here we saw a piece of flax in flower, cultivated in drills, and as clean as a garden. Next to this was a patch of oats sent by sir John Sinclair; they appeared to be a coarse kind in the chaff, short in the straw, and early in ripening; their name and country we have forgot; but if they be valuable, we shall hear more about them. The third object was an acre of two of cabbages, proposed by Dr. Rigby: they were the early York cabbages, recommended to field culture, in rows of three feet apart, to allow of working the soil between them during their whole growth; the crop to be consumed in August, and the land planted with Savoy for winter. Respecting this as a cattle crop, we are of opinion that one crop of Scotch cabbages would weigh more than them both; besides that, the August crop of cabbages must be consumed when they are not much wanted. A gentleman present observed, that the savoy would not continue well as food for ewes in spring, and that the second planting had better be the thousand-headed cabbage. We think the Scotch kail a much better plant for this latter purpose. Beyond this was a field of peas, cultivated upon an experiment recommended by Lord Albemarle: one half was cultivated in rows of 18 inches apart; the other half in double rows of nine inch intervals, with a double interval of 18 inches between each two rows. The crop was altogether very fine; but Mr. Coke informed the company that this was only the second year of the experiment, and that he never pronounced any decision or opinion, as weighing upon his mind, on less than three years experience. Leaving the experimental site, the company were led through several fields of turnips, where the horse hoes were at work on the young crops, and on those more advanced were women and children setting out the plants, women with hand hoes cutting the rows across, and children singling the plants by hand.

From hence the company were led by various crops of excellent wheat, barley, and turnips, to the site of last year's ploughing match, where was seen a striking proof of the advantages of a stale furrow; the crop was oats after two year's lay. The parts ploughed last year on the 3d or 4th of July, had been stirred in the winter, and the intervals, which had been fed the rest of the year, were spring ploughed just before sowing; the difference was visible as far as the crop could be seen; and in consequence of this and other proofs in the Park persons in the neighbourhood are now ploughing up the lays which are intended for wheat in autumn.

Leaving this, the company were led over an old sand-lay, which Mr. Coke said would have been ploughed up several years ago, as it was then nearly worn out, but for the gypsum which had been recommended by Mr. Holdich; the crop was now luxuriant, and it appeared that the gypsum this year had so invigorated the plant, as to renew the lay, and prolong it for an indefinite period in a productive state.

From hence they arrived speedily at the Great Barn, where the prize cattle were exhibited. Here the company alighted, and the stalls were soon thronged with spectators, so that it was almost impossible for us to make way to the several objects for necessary information. The show of Devon cattle was certainly admirable. In returning towards the Hall, Mr. Coke led his company to a grass-land which had been last year sowed with common rye-grass, across the middle of which two bushels of the improved sort had been sown, which had been raised, and were sent to Mr. Coke by Mr. Holdich. Mr. Coke begged the company to observe the superior verdure, and the much better cover of herbage that appeared on this part: the whole lay had been stocked together, and had been closely eaten; but Mr. Coke declared that such was the apparent superiority of this part, that he had no doubt that it would carry a sheep and a half an acre more than the other; therefore, in future, he would never sow the common rye-grass. The last object of this interesting ride was a field of *creeping wheat*, a variety which is likely to be a valuable acquisition to the husbandman, as it has not yet been known to midew.

THE DINNER.

Upwards of 600 persons dined at the Hall this day. As soon as the cloth was drawn, Mr. Coke rose, and in a short address proposed the health of the Duke of Bedford; stating how much he was indebted to his Grace for his kindness in coming to Holkham, for that having been long ill, it was an exertion to oblige him (Mr. Coke) which he could hardly have expected. Mr. Coke added, that he hoped his Noble Friend would not fatigue himself by much exertion in reply, as he was sure the company would readily remit their own gratification in favour of his health, well knowing the sentiments and public spirit of the Duke of Bedford.

"The Duke of Bedford, and prosperity to the House of Russell," with three times three, which was drank with enthusiastic cheers.

The Duke in rising to return thanks, adverted to the weak state of his health for some time past, but observed that as long as he was able, it gave him the highest gratification to meet the company at Holkham. "I am extremely gratified (said his Grace) with the honour done me, but more with the manner in which it has been conferred. I would have wished to have been spared the pain of receiving so flattering a remark of your esteem, but being all my life strongly attached to agricultural pursuits, I cannot omit to make one or two observations on the important question which has so long engaged the public attention. After years of painful struggling, a Committee has been appointed, but the result of their inquiry must be unsatisfactory to every man who expected relief. Whether the report of that Committee was drawn up by the Chairman, by Mr. Huskinson, or by an able political economist, it matters not; it is the instrument of the Committee, and has now become a document. To the great body of the country, to the whole agricultural interests, forming the foundation of national wealth, it is the most futile, inoperative, and abortive production that ever proceeded from such labours. "*Parturient montes nascitur ridiculus solus*." As to that pretended boon, the repeal of the Agricultural Horse Tax, it might be some trifling advantage, but to call it a relief is a perfect mockery; it is a mere drop of water in the ocean that overwhelms us. One of the causes of the distress of the country, is said to be abundance; I have heard this approved by the Prime Minister of England. Gentlemen, if this be the case, what becomes of our efforts and our industry? What becomes of our skill in cultivation, and the judicious application of labour and manure, if the results may thus confound our exertions, and become the destruction of the country. (Applause.) It is impossible to believe so absurd an inference, and no words can express my abhorrence of such a doctrine! If skill and labour are thus productive of mischief, my friend, here, I will venture to say, is the most mischievous man alive! (Laughter and applause.) His Grace concluded by paying some elegant and forcible compliments to Mr. Coke, who from his earliest

days he had looked upon as a perfect model of an English Gentleman; and thanking the company for the honour he had received. (Great applause.)

Mr. Coke then gave "A worthy branch of a noble stock, the marquis of Tavistock," with three times three, which was drank with great applause. The noble marquis briefly returned thanks.

There is another branch (said Mr. Coke) yet in the house, a son of Lord William Russell, whose health I beg to give, with three times three. (Great applause.)

The young gentleman, in returning thanks, said the only claim he could have to the honor he had received, was the name he bore, as he was too young to merit any thing on his own account.

Mr. Coke then gave the health of Lord Althorp, who, from his skill and celebrity as a breeder of Short Horns, he had requested to act as a judge of the cattle.

His Lordship's health was drank with great applause.

Lord Althorp, in returning thanks, said he received the applause with more grateful feelings, as coming from the yeomanry of England. "I am too young (said his Lordship) to give information. I accepted the office of one of the judges, though I feel myself unequal to the task; but I consider it my duty to do the best in my power on all occasions in which I am called upon, and should feel ungrateful for the good opinions of others if I did not accede to their wishes: in the present instance my want of skill will be made up by the more matured knowledge of able colleagues. Something I ought to say respecting the disappointment of the public expectations in the Report of the Agricultural Committee. I attended it until attendance made me ill, (Applause,) and was then obliged to desist. Every man who reads the Report must see that no good can result, and perhaps a great many of those who looked for relief, were mistaken in their object. I am bound myself to declare that *taxation* is the cause of distress, (Applause,) and must be relieved to give prosperity to the agricultural community. Every one must be aware that such a subject would not be touched upon in the Report of such Committee, but from the evidence delivered, the truth is established, and this may lead to the true and speedy remedy. (Applause.)

His Lordship then observed that he very gladly reverted to agricultural topics, and begged to say a few words in regard to the different breeds of cattle. It was too much the custom of those who bred one kind, to deride all others; not but that a natural preference must be felt for the sort individually kept, and a laudable pride in their excellence or superiority; but after all, one breed could not be the best for all soils, and he believed that though the Devons were best adapted to light soils, the Short Horns were more profitable on rich soils. The great merit of the Durham cattle, undoubtedly was early maturity; the Devons they had seen there certainly approached very near to perfection in their kind; but besides the adaptation to rich soils there were also various objects held in view; and the yoke, the dairy, and the shambles, offered several motives of preference which would be hardly united in any one race. His Lordship concluded by returning thanks, and drinking the health of the company. (Applause.)

Mr. Coke then, with some handsome compliments, gave the health of "Lord Nugent," which was received with loud applause.

His Lordship, in returning thanks, addressed the company in a very elegant and forcible manner. He began by thanking Mr. Coke for that partiality of which he had received so many testimonies. He (Mr. Coke) had alluded to the introduction of the Drill Husbandry into Buckinghamshire: it was true that he (Lord Nugent) had done all that lay in his power to promote so desirable an object, for what he learned in Norfolk he was happy to teach in his native county; how far he had succeeded he desired to spare Mr. Coke the mortification of hearing, for certainly his improvement and progress had been in no proportion to his instruction. "I come here (said his Lordship) to learn lessons that sink deep in my mind, and I should not covet the head and heart of any man who could receive them unmoved. I see here how a land-

lord may be made illustrious, a tenantry prosperous, and a people happy! (Applause.) I see here an union of affection, an union of interests, and their happy results on the face of society and the country. I see near our truly noble host one illustrious from rank, illustrious from blood, but peculiarly so from character and conduct. (Applauses.) I see him descend from his high station, to mix with the yeomanry,—to be the patron of sciences; the encourager of charities; and, allow me to say, the support and champion of public liberty. (Great applause.) This is his great distinction, that he is endeared to every one by his worth; not from his rank, not from his blood and connections,—not from a long line of illustrious ancestry,—but by the glory he derives from virtuous actions, which shall live to alter ages, when diadems and coronets have sunk to dust." (Great applause.) His Lordship then alluded to the impossibility pointed out by Mr. Coke, of being now silent on public affairs; indeed no one could help looking to the ruinous consequences of those measures which were now so bitterly felt, and must justly fill every heart with alarm, and every mouth with outcries. For his own part he attributed the whole mischief to a headlong and desperate expenditure, which required and had been supported by an excessive and grinding taxation. (Applause.) Taxation was the beginning, middle, and end of all our evils. (Applause.) It had been used without wisdom, without moderation, and without control; it has been applied to every purpose; necessary and unnecessary, good and bad; to purposes of national defence, and of childish vanity; and above all, to purposes of unbounded and gross corruption. (Loud applause.) By these means we had compromised our safety—we had lived beyond our income, and we had ruined the country with rapacity. Now, what was the plan and direct remedy to such a course? Suppose a prodigal and extravagant man were to find his resources fail, and come to a wise friend and counsellor for advice. He says, "I have ruined my fortune; I am undone with expense; for the last five and twenty years I have lived beyond my income, and plunged into the most heedless and disproportioned extravagance, and this is the consequence. What must I do?" "Why," says his friend, "what should you do but live within your income for the next five and twenty years?" "Oh!" but says he, "my horses and carriages—my footmen and liveries—my parks and palaces—all my dignity and splendour; my rank will not suffer the least diminution! Not a rag of red cloth,—not a yard of lace,—not a gaud,—not a feather can I spare! My pride will be humbled,—my friends will fall off—"

"Truly," says the other, "they are trencher friends, as you seem to be aware, (Great Applause,) and you are a fit tenant for Bedlam in trusting to them so long."—"But," continued his Lordship, "although the cases are somewhat parallel, yet the conclusion is not; it is impossible that the nation should sink to imbecility by the evils that oppress it; rather it should be roused to consider the full extent of the evils, and to apply a proper remedy. If I am asked *how* is this to be done? I answer by putting the pledge of economy to every candidate for a seat in the House of Commons. There still is really and truly a constitutional power to redress our grievances, if the people will do their duty. We have shining examples of this fact. Look at Wiltshire, so well represented in its Member here present. (Applause.) Look at Essex, represented here. (Applause.) Look at Kent, represented here. (Applause.) Look at Northamptonshire.—Look at Bedfordshire.—Look at Westminster.—Look at Aberdeen; and last, though not least, look at the head of this table, and see how Norfolk is represented here! (This climax was accompanied and followed with a tumult of applause.) His Lordship thanked the company, and sat down amidst continued cheers.

"The High Sheriff of the county of Norfolk."
"Breeding in all its branches."

(To be continued.)

BOSTON, OCT. 16, 1821.

BRIGHTON CATTLE SHOW—1821.

Proceedings of the Massachusetts Agricultural Society at the late Brighton Cattle Show.

Continued from page 243.

This interesting exhibition took place on Wednesday, the 13th of October. The Agricultural Society, after their meeting for the transaction of business, went in procession to the church, where an address was delivered by the Rev. Mr. COLMAN. The committee then proceeded to the examination of the Domestic Animals and Manufactures exhibited. The pens for the exhibition of animals were better filled, as far as we could judge, than on former occasions, and by a large proportion of very beautiful animals. The kinds of animals exhibited were considered as evincing in the most satisfactory manner, the continued improvement in the stock of our farmers. The exhibition of Manufactures, embraced a great variety of articles of excellent fabric.

The members of the society dined together at Dudley's tavern. A very large number of members of the society and of other gentlemen from various parts of the state, assembled to witness this exhibition. The concourse of spectators, was probably greater than on any former occasion.

Ploughing Match.—The ploughing match, and the trial of working oxen, took place the next day. In the former there were seven competitors, and in the latter eleven. The ploughing was remarkably well executed, and the show of working oxen, was pronounced superior to any former exhibition.

In the afternoon the Reports of the several committees, by which the premiums were awarded were read in the Church, where the Society met, and other persons attended. The competition for premiums was on a great variety of objects, and for many of the premiums there was a great number of competitors. The duty of deciding on the claims of the several candidates was assigned to several committees; who made separate reports.

The First report was published in our last—it will be continued, until all shall have appeared.

Agricultural Dinner.—At the Dinner in Dudley's Hall, in Brighton, the following toasts, among others were given.

The Commonwealth of Massachusetts—May it be always problematical, in which she most excels, Commerce, Manufactures, or Agriculture.

The Nursing Mother of Law, Phisic and Divinity;—of Trades, Manufactures and Commerce;—*Agriculture.*

Our Fellow Citizens—May they be always esteemed the best Ploughmen on the ocean and on the land.
Our Soil.—May it be forever free and forever unshackled.

The Sea and the Land.—May our citizens make fish of one, and flesh of the other.

The Military Farmer—Armed with his Pruning Knife, Scythe, and Hoe, may he cut up and extirpate all his enemies.

The greatest and best farmer in the world, and one of the staunchest and earliest friends of America, *Mr. Coke of Norfolk, Great Britain*, who for forty years has toasted our Washington, as the greatest man the world has ever produced.

The Grafton Agricultural Society of New Hampshire—We bid her delegate welcome!—as farmers, we are all brothers; earth, our common mother.

By Mr. QUINCY, delegate from the Grafton Agricultural Society. *The Massachusetts Society for promoting Agriculture*—Our common parent, to whom as children we look up for support and instruction.

By his excellency Gov. BROOKS. *Farmers*—May they, who feed the world, be themselves well fed.
By His Hon. Lieut Gov. PHIPPS. *The Farmers*—May science guide, and industry sustain them.

By the President—*The Orator of the Day*—Who

has taught us the true doctrines of Agriculture, in the true spirit of a christian.

By the Hon. John Davis. *The College Farm*—* Enjoying its good fruits, may the whole country heartily respond to the injunction—"Save the Seed."

* Referring to a Watermelon of enormous size, sent from the College Farm, with the injunction, "Save the Seed."

NO. 2.

The Committee of the Massachusetts Society for the Promotion of Agriculture, appointed to decide on the Premiums for Sheep and Swine, offered at the Cattle Show at Brighton,

REPORT :

That they award the premium for the best sow to John Prince, Esq. for that Sow which he denominates his Essex and Blue China—\$10.

The second premium to Dr. Francis Moore, of Brighton, for a Sow, from White's imported English breed—\$5.

The premium for the best Boar, of the breed denominated White's breed, mixed, to Luke Fisk, of Waltham—\$10.

The premium for the second best Boar, to the * Town of Cambridge, being of the Byfield mixed breed—\$5.

The premium for the best Store pigs, to Josiah Hovey—\$10.

The premium for the second best Store Pigs, to James Robbins—\$5.

For the premium on Merino Sheep, the Committee regret that there was no competition, Gen. Austin being the owner of all which were offered.

The Merino Wethers, your Committee deemed to be well entitled to the first premium, both for form and flesh, and they accordingly awarded it—\$20.

The Merino Ram, exhibited by Gen. Austin, the Committee did not deem to be of so superior a quality as to be entitled to the first premium, but they award the second, of \$10.

Your Committee were of a similar opinion in relation to his Ewes. They therefore award the second premium, of \$10.

For the premium on native Wethers, there was also no competition. They deem those offered by Stephen Howe, worthy of a first premium, and they accordingly award it—\$10.

For the committee.

JOSIAH QUINCY, Chairman.

* The Said Boar belonging to the Poor-House establishment of that town.

NO. 3.

The Committee of the Trustees of the Massachusetts Society for the Promotion of Agriculture, on the subject of Inventions,

REPORT :

That the Machine called the Flaxseed Separator, offered by Mr. Hotchkiss, of Brattleborough, Vermont, embraces all the particulars specified in his statement, and is entitled to the premium proposed by the Society, of \$25.

A Washing Machine was presented by Mr. Hodgdon, of Newton for exhibition only, and not for premium, which consists of a Rotatory Tub, turned by a crank, operating on a horizontal block, the sides of which are planes inclined towards the centre of the tub, and doing its work chiefly by pressure—was put to trial in the family of Mr. Dudley, Innholder, Brighton, under the direction of your Committee. On examination, all the persons who were experienced in such operations, and who had worked with it; and others, who had seen its effect, unanimously declared their opinion that it was the best machine for this purpose they had ever seen, and that it had done as much work in one hour, as it would have taken the same hand half a day to have performed in the ordinary way. This Machine would have been entered for premium, had it not been for a misapprehension concerning our rules, for which Mr.

Hodgdon is not responsible. Under the circumstances your Committee recommend to the Trustees to award to Mr. Hodgdon, considering the nature of the Machine and its apparent utility, the sum of \$10.

A Rotatory Churn, having a horizontal movement, was entered by Mr. Jenison for a premium. The only evidence in relation to it was that given by Gorbam Parsons, Esq. who, although favourably impressed towards it, yet preferred much the Churn presented to the Society by John Mackey. Under these circumstances your Committee did not deem themselves authorised to award any premium.

A Machine for Threshing Grain constructed upon a good, and as far as your Committee was apprized upon a new principle, was presented by Mr. Asa Shattuck, of Pepperell. A model only of the machine was presented, so that your Committee could not have the advantage of seeing its operations personally. The evidence adduced, was satisfactory, so far as it related to the trials therein specified. Your Committee, however, from the evidence before them, were of opinion, that its effect was not superior to that for which a premium was formerly granted to Mr. Hotchkiss; nor did the evidence of the trials to which this machine had been subjected amount, in the opinion of your Committee, to proofs of that continued farming use, by a practical farmer, which in their apprehension according to the promulgated rules of the Trustees, would justify them in deciding that it is "the best, the simplest, and least expensive Machine for threshing wheat and other small grains."

A Machine for Threshing and Winnowing Wheat, was presented by Mr. Gragg, of Londonderry.—This machine was complete, and performed its work excellently—in both operations. It is simple and considering its objects, not expensive, the cost complete being forty dollars: and it was said to be well calculated to thresh grain mown as well as reaped. The proprietor had however brought with him no certificates, nor had your Committee any opportunity of putting it to such a trial as would justify their awarding any premium. They think so well of the Machine, that they are of opinion, that if the proprietor shall adduce certificates within three months of what it is capable of performing, and if said certificates shall be satisfactory to the Board, as to all the particulars stated in the published regulations, he will be entitled to the premium.

An Invention was presented by Mr. Simon Willard, of Roxbury, for exhibition only, and not for premium, being an Alarm Clock, every part of which was executed in his own manufactory, excepting the glass. The work was neat, elegant and simple, and well adapted for its purposes; and in every respect worthy of that ingenious and distinguished clock maker.

A Lead Pipe for the conveyance of water, was also presented for exhibition only, by David Loring, the proprietor. The execution was neat, and as far as your Committee could judge, from inspection—it would answer all the purposes specified in the advertisement of Mr. Loring, the proprietor.

There were also several other articles offered for premium, but no person being present to explain the principles or the operation of the Machines, your Committee deem themselves discharged from the necessity of reporting upon them particularly.

For the Committee,

JOSIAH QUINCY Chairman.

Brighton, Oct. 11th, 1821.

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Recorded by Order of the Society in the American Farmer.

Morgantown Agricultural Society. North Carolina.

A number of respectable citizens of Burke, having met at the Court House, in Morgantown, on the 4th day of July last, for the purpose of forming an Agricultural Society. D. TATE, Esq. having been appointed Chairman, the following gentlemen were appointed a Committee to draft a Constitution—Col. W. W. Erwin, Col. J. T. Avery, Col. James Erwin, and James

Murphy, Esq. who reported the following which was unanimously adopted.

Laws of the Morgantown Agricultural Society, as revised and passed at their first regular meeting—July 4, 1821.

Article 1—The Society shall be styled the Morgantown Agricultural Society.

Article 2—The Society's attention shall be confined to agriculture and rural affairs. They will carefully avoid topics which are productive of dissention, or calculated to withdraw their attention from the objects of common concern.

Article 3—Every member subscribing to these articles, shall contribute one dollar or more annually, for a fund to be applied to the purposes of the society.

Article 4—The society shall consist of every individual friendly to its objects, provided he shall first have been nominated and elected by the ballots of two thirds of the members present.

Article 5—The officers of the Society shall be a President, a Vice President, a Treasurer, a Secretary, and an Assistant Secretary when the increase of business shall require it, and a Standing Committee of five members.

Article 6—The Society shall have five regular yearly meetings, and at the following periods. On the 4th day of July, on the return day of the Election, and on the first Wednesday in January, April, and October.

Article 7—The officers of the Society shall be elected annually by ballot on the 4th day of July, and in case of vacancy by death, resignation, removal out of the county, or from any other cause, the same shall be supplied by an election to be made at any stated meeting of the Society, the person or persons then newly elected to serve the remainder of the year.

Article 8—At all meetings of the Society, the President or in his absence such person as the Society shall elect pro tem shall exercise the usual duties of that office. All motions shall be addressed to him, and on all questions he shall collect and declare the votes. He shall have power to call special meetings of the Society, by notice through the Secretary, at as many public places in the county as he shall direct. He shall with the standing committee have power to correspond with other societies or individuals on Agricultural subjects, and with the standing committee he shall attend to and regulate the pecuniary affairs of the Society, direct expenditures to be made when necessary by their order on the treasurer, whose duty it shall be to make a report thereof at the next regular meeting of the Society thereafter, which report shall be subject to the ratification or rejection of the said Society.

Article 9—The Secretary and by his direction the Assistant Secretary when appointed, shall have in charge all the books and papers of the Society, and keep the same in exact order; they shall also keep on regular files, all letters which shall be written by the President or Standing Committee or by themselves by order of the Committee, and at the stated regular meetings of the Society, submit the same for the further order of the Society.

Article 10—The Treasurer shall keep the accounts stated on the books of the Society, and when called on produce the same for inspection; but at the last regular meeting of every year and also whenever his office may end, he shall produce a fair and regularly stated account of all receipts, payments and expenditures, and deliver it together with the books and all other property of the Society in his hands, or which of right ought to be, to his successor in office, or to the order of the Society.

Article 11—A quorum for business shall consist of at least nine members.

Article 12—The Society shall be kept in order by the rules which are observed by the General Assembly of this state, for that purpose.

Article 13—Donations may be received by the Treasurer to be added to the funds of the Society.

Article 14—All such distinguished citizens of this state and of other states & countries whom the Society may elect for the purpose, shall be honorary members, and they are hereby invited to aid the Society.

and if convenient to assist at their meetings. Strangers who desire to be present as auditors may be introduced; and for that purpose each member shall be authorized to bring one friend along with him to any meeting.

Article 15—Whenever a new member is elected, it shall be the duty of the Secretary forthwith to notify him of his election, in the following form.

On the — day of —, 18 . A. D. of — was elected a member (or honorary member) of the Agricultural Society of Morgantown, the Society inviting his assistance. C. D. Secretary. Provided always, that no election for members shall take place except at one of the regular meetings of the Society.

Article 16—At the close of every regular annual meeting, the Treasurer shall lay before the Society a list of the members, specifying those who have and those who have not paid their contributions: and if the contribution of any member shall be found more than one year in arrears after the same shall have become due and payable, and if the same has been personally demanded of him by the Treasurer or Collector authorized by him for the purpose, such member shall be considered as withdrawing from the Society and be no longer deemed a member, and the same shall be entered on the minutes. Any member of the Society may withdraw from the same by sending a letter of resignation to the Secretary and paying up any arrears which at the time he may owe the institution.

Article 17—As a source of information and a means of gaining and diffusing useful knowledge auxiliary to practice, the Society shall as soon as the funds will admit, purchase a collection of books and models, and shall propose prizes for experiments and improvements in husbandry, in the manufactures connected with it, and for the improvement in the breeds of our domestic animals. To promote these views the friends of Agriculture are invited to assist the Society by furnishing facts, experiments, and incidents in husbandry.

Article 18—The Society shall have power to add to, alter or amend the present constitution, provided however that no addition, alteration or amendment to this constitution shall be adopted without the concurrence of two thirds of the members present, at one of the five regular meetings of this Society.

Article 19—The Society shall hold their meetings in Morgantown, at such place as the standing committee shall provide for that purpose.

The Society having postponed the election of officers until the 10th of August, and having met on that day, the Rev. H. J. Miller having been appointed Chairman, the following gentlemen were elected officers.

PRESIDENT.

James Murphy, Esq.

VICE PRESIDENT.

Col. Isaac T. Avery.

TREASURER.

Major William Ballew.

SECRETARY.

Mr. John Murphy.

ASSISTANT SECRETARY.

Mr. W. A. Erwin.

STANDING COMMITTEE.

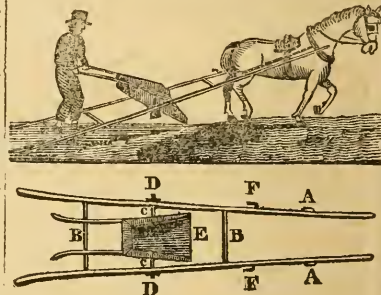
Colonel W. W. Erwin, Major John M. Grunlie,
Colonel James Erwin, John Rutherford, Esquire,
Captain John B. Tate.

VIRGINIA HUSBANDRY—EDITORIAL OBSERVATIONS THEREON.

Upon this subject I took occasion in a former Number, to remark that "on the farm of Mr. N. * * * *, near Battletown, my attention was drawn to a great improvement in the construction of the Ox-SHOVEL commonly used on Turn-

pike roads; but here employed for making ponds, to gather rain water, for Stock.— In what that improvement exactly consisted, I cannot now state, but I recollect that, without giving complication to the implement, it gathered the earth more rapidly, and delivered itself of its burden more easily than the one in common use."

I have since been kindly furnished with a sketch, from which the engraving below has been made, and which, though in some particulars erroneous, will enable the reader to understand the form and use of the machine. Amongst other purposes to which it may be well applied, its utility in making and mending roads, in cleaning ditches and dungfills—scrapping together the remains of barn yards, wood piles, &c. &c. for making compost, is obvious.



The two long lines running parallel with each other, marked A represent the shafts which may be from 10 to 12 feet in length. The two lines marked B, designate the braces—C the axle from which the box is suspended—D the sockets made of iron for the reception of each end of the axle, sufficiently large for it to work freely—it is necessary for the box to be larger at the end marked E, which is open as you will discover by the model enclosed. You will also discover that the box is provided with handles, so that the labourer can bear on them when filled with mud or earth, by which the axle turns and raises the box or receiver on a level—so that the driver can move off without losing any of his load—F also represents the staples to which the chains are fastened.

The error in the engraving consists in representing the box as resting on, instead of being suspended below the axle; which is done by means of an iron strap half an inch thick, passing round the body of the box and running up above the top of the sides of the box, about six inches; to give room for two holes, large enough to go over each end of the axle, and to bear the weight of the box when full of earth. The axle on which the box hangs and turns, may be made of a tough piece of wood one and a half or two inches thick, fastened on the top and across the shafts by means of two iron staples drove into the shafts to keep the weight of the box from pressing downwards or towards the driver. The handles should be fastened to the bottom, side, and end; and project three feet behind the body of the box, giving thus, to the driver, the same command that he would have over a plough—

When the box is full, bear slightly on the handles and all the weight then rests on the shafts or axis. I was told by Mr. N. that he had removed more mud from his ponds in three hours with a man and horse, than six carts and ten men could in a day with spades and shovels—in the formation of ponds it is especially preferable to these latter implements, in as much as it acts like a trowel, and plasters smoothly the fine sediment at the bottom, which is thereby rendered imperviable. The box should be clamped at different points by straps of iron rivetted on, and the bottom should consist of oak or other hard plank, inch thick, the front whereof should be shod with iron.

Editorial Correspondence.

Meridian Hill, October 26, 1821.

DEAR SIR,

When we reflect, that the nation having at command the most timber suited for naval purposes, even if she had not a ship on the ocean, provided her other means were equal, is in the best condition to become the most formidable naval power, the suggestions contained in the enclosed letter will appear deserving of every attention.

To provide the means of national defence is certainly the duty of those placed in the government; and it would appear to me that the culture of Trees for naval and military purposes, is an object nearly equal in importance to the formation of military roads, and that our soldiery and others in the public pay, and not otherwise engaged, might be thus employed to advantage.

It cannot be expected that individuals in this or any other country will engage in farming extensive plantations of forest trees without the hope of some reward for their trouble; and this reward will always be in proportion to the demand for, and scarcity of timber, nor will they be satisfied here unless the reward is speedy.

In this country, to supply our wants it is easier to remove our families to where timber is more abundant than to cultivate trees for private uses. In England there could be no advantage in this respect, from a change of residence, as the whole country is equally destitute of forests. In the one case, then, there is no inducement for exertion; in the other, necessity and a rich reward call for every effort that can be made to increase the number of forest trees.

The father who leaves to his children in this country a well stocked forest, leaves to them a rich inheritance—how much more so is it then in England. It is too common an expression with us "this will serve my time;" an enlightened policy should induce us to look forward to the day when our population, our resources and our importance may equal the most extravagant speculations of enthusiasts.

We are not an ephemeral nation—we have an important part to take in this world's stage—let us look then to the future and judge of it from the past. Carry your imagination back four hundred years this country was a wilderness. Four hundred years is a brief space in time—what an aspect does it now present? what was then considered an inexhaustible source, is nearly exhausted; complaints every where exist of a scarcity of wood for the common purposes of life—look at the date of the letter I send you *Tennessee*, a place not thought of a century ago, even there a scarcity is felt; and in a short time hence the same complaint will be made from beyond the Rocky Mountain. A gentleman from Kentucky, of high political standing and every way qualified to judge, informed me a few days since that they felt in that state seriously the want of wood for ordinary purposes; and from the best information I can collect from all quarters, there cannot be a doubt that in every part of our country now settled, the want of wood is already ex-

perienced. Abundance has hitherto produced waste—and I want is now the consequence.

We have yet a sufficiency left, however, if we economize, but if we continue to destroy as we have done, there is no calculating where the evil will end. Reservations ought to be made of large tracts of lands containing timber suited for naval purposes; measures ought to be taken to guard them against depredation; and, as the writer of the letter observes, oaks or some other useful tree ought to take the place of Lombardy Poplars around all our public works. Let it be remembered also that according to the old adage, every man is bound to do three things; and that to plant a tree is one of them.

With great respect your obedient servant,

D. PORTER.

J. S. SKINNER, Esq.

Kingston, Tennessee, Oct. 6, 1821.

SIR,

I have read with much pleasure your observations on timber and its use, printed in the *American Farmer*—it will be of great benefit to your fellow citizens I hope. I beg leave to suggest to you that on all public grounds about Navy Yards, where practicable, that the Navy Board direct the planting of oaks, or some trees as useful for the navy, in place of the Lombardy Poplar now used. I think such an arrangement will do much towards getting the people to think about preserving their timber, for as you observe it is fast two acres in young oaks to ascertain their growth, for I think it will be found they will grow nearly as much in one year here as in the north of Europe in two. The War Department might adopt the same ground or about their Forts and Arsennals. Please think on this, and also what name it will one day give the man, who having it in his power, is the cause of commencing such a system.

SAMUEL MARTIN.

Commodore D. PORTER.

THE EFFECT OF LIGHT ON VEGETABLES;

From *Reese's Encyclopedia*.

"We have already stated a fact discovered recently by Malus, that Light acquires new properties by a peculiar reflection. Does it then appear impossible, that it should not be changed in passing through diaphanous media? May not that which moves with the greatest velocity, have a greater portion converted into heat; or in other words, may not this conversion be as the velocity? This idea is strengthened, from the circumstance of Caloric rays being found throughout the spectrum. The greatest objection raised to this idea of light and heat being excited by the same rays moving with different velocities, are founded on the facts of combined light in phosphorescent bodies, and in the chemical effects, which were thought to be peculiar to light. In our next subject, however, we shall show that all the chemical effects producible by light, can be produced by heat.

Besides the properties of the solar beams to produce heat and light, we find them to have other properties equally important to the animated world. This is most conspicuous in the economy of vegetables. It has been many times proved, that vegetables, growing without light, would not, in the first place, have more tendency to grow upwards, than in any other direction. This arises from an evident attraction arising between light and living vegetable. This fact is familiar to those who have placed

trees in windows. It is observable, that they always lean towards the light. The same effect could doubtless take place, if one side of a vegetable were shaded in the open air. The attraction of light is probably not the same for the different vegetables, by which we may account for the different forms of trees. This is rendered plausible when we contrast the spreading branches of the Oak, with the towering branches of the Poplar.

Experience has long ago established, that vegetables become destitute of smell and flavour, and lose much of their combustibility, by growing in the dark. We find in Dr. Black's lectures, an account given by the celebrated Dr. Robinson of Edinburgh. In the drain of a coal-work under ground, he accidentally laid his hand upon a very luxuriant plant, with large indented foliage, and perfectly white. He had not seen any thing like it, nor could any one inform him what it was. He had the plant with a sod brought into the open air in the light. In a little time the leaves withered, and soon after, new leaves began to spring up, of a green colour, and of a different shape from that of the old ones. On rubbing one of the leaves between his fingers, he found that it had the smell of common Tansy, and ultimately proved to be that plant, which had been so changed by growing in the dark. Indeed it was recollected that some soil had been taken into the drain from a neighbouring garden some time before it was found so altered.

This effect of light is not less conspicuous in the growth of Celery. By covering it with earth, the light is shut out, which would soon turn it green, and make its flavour so strong as to render it unfit to be eaten, at the same time that it would render it more fibrous and tenacious.

From the circumstance of light giving odour and inflammability to vegetables, and since these properties are most common to bodies containing hydrogen, it would appear that light was essential to the production of hydrogen, perhaps by expelling oxygen; and hence it would also appear that hydrogen is necessary to the colour of vegetables. It has been asserted by Humboldt, that he found vegetables growing in the dark mine, having their natural colour, but these plants were enveloped by hydrogen."

FOR THE AMERICAN FARMER.

LEWISVILLE, S. C., Oct. 19th, 1821:

"I had just been preparing a statement for you, of my success in yearly selecting my seed-corn, when your 27th number of the *Farmers*, arrived, containing Mr. Cook's letter to you on the same subject. It has been highly gratifying to me to find my own experiment so well supported.—I, also, commenced, in 1815 to select my corn for seed, and found it difficult to find a sufficient number of stalks with two ears to give me a sufficiency for seed—it was almost as difficult this year to find in my field as many stalks with only one ear; and I have now gathered my seed corn from stalks bearing three ears. My neighbours were struck with the appearance of my field, and acknowledged that there might be something in the selection of

seed: some of them are beginning to follow my example.

I have had for seven years about half an acre of Lucerne under cultivation—it was drilled fifteen inches apart—was well manured every autumn, the manure dug in with a mattock, and it was hoed three or four times thro' the summers. —I get from six to nine cuttings from it, according as the season is wet or dry—its height at the first cutting is usually three feet—and it generally gives me abundance for six horses three times a day, besides a feed for four cows at milking time—but to my astonishment, my 6th cutting this year, which was in the end of August, salivated my horses—and it has continued to do so ever since, and obliged me to stop the use of it—it has never produced the slightest effect of the kind before. This has been a wet summer, but not more so than 1817 was; and to be sure that the salivation was not produced by clover, or any other substance mixed with it, I had a basket of it carefully hand-picked and given in the stable to my horse, and in half an hour afterwards he was slabbering just as if he had been in a clover field. The object of this communication to you, Sir, is to request you would obtain me information through the aid of the American Farmer—whether Lucerne has ever shewn the same ill effect elsewhere, or if I may hope it is only an anomalous instance arising out of some peculiarity of the season—it is a most valuable grass for soiling, and pays well the extra labour of its culture."

Messrs. Printers.—The accompanying observations being designed for the public, you will oblige the writer by giving them a place in your paper.

CURE FOR THE DYSENTERY.

In one gill of fountain water dissolve as much common table or sea salt, as it will take up or melt, add to it one gill of good vinegar.

Of this mixture, give once in a quarter or half an hour, to grown persons, or to children, such doses as the stomach will bear without puking. If a considerable portion of the essence of peppermint be added, it will be a valuable improvement of the medicine.

The sick person may drink freely of Port, Madeira, or any good wine; or if these cannot be procured, he may drink French brandy or common spirits moderately diluted with water and sweetened with sugar.

To a refined ear, the Muriate of Soda might have sounded more agreeably, than common table or sea salt. The dysentery, however, is not seated in the ear; and as this malady so often fatal, may reach the humble cottage, it is hoped that its simple remedy will not preclude him from a knowledge of the remedy.

The symptoms which prevailed in those cases where the writer of this sketch applied the above described remedy, are at first a sensation in the stomach almost like that of hunger, followed quickly by lacerating, or cutting like pains through the whole ductus alimentis or alimentary canal, these followed by frequent evacuations streaked with blood; a tenesmus; a pain symptomatic in the head and loins; a loss of appetite, fever and general lassitude or loss of strength. He has known the symptoms come on exactly in this order; but in every case, which he considered a real dysentery, the above treatment has succeeded.

It has been said that Mr. Perkins, the vender of the metallic tractors, recommended salt and vinegar in the dysentery. The writer of this sketch disclaims originality.

In Woodbury, Conn. where the dysentery became epidemic, it baffled other modes of treatment, and salt and vinegar became a common and efficacious remedy. Being resorted to in diarrhæa, probably not

of a dysenteric nature, it appeared to be a means of no utility, and from this circumstance partly, and partly from the ostentation, at least of pretenders to science, the vulgar remedy of salt and vinegar seems to have become unfashionable, or otherwise never to have acquired general notice.

When the writer of this sketch had nearly completed his medical education, he became sick of a dysentery. The symptoms had risen to a considerable height before he had recourse to medicine. He was advised to the use of opium. He neglected it, recollecting what is above related of the use of salt and vinegar in Woodbury, which was about eight years previous; he had recourse to it. In twelve hours he was free from symptoms of the complaint, except the consequent debility.

A young gentleman of respectable talents, considerably advanced in his medical education, described the earliest supervening symptoms of a dysentery. They were as violent in degree as is usual in that stage of the disease, and clearly marked. It was moreover, when the complaint prevailed. He was advised to the use of salt and vinegar. His preceptors, to whom I was on a visit, laughed at the idea. He used it—Some hours after he was rallied on the subject, he said "I have arrested my complaint." The principal characteristic symptom did not appear and the others subsided.

On a visit to another kinsman, his infant child, for a dysentery, had been under medical treatment for a week or ten days. A council to the best of my recollection, had been called, and the physicians, for more than one had attended it, seemed to despair of its life. By the use of salt and vinegar it soon seemed evidently to be better. The remedy was continued. Soon the child seemed to be much distressed, and cried as if in great pain. The abdomen was swelled and seemed to be spasmodic. In this situation, the salt and vinegar, without having apprehended any hurtful effect from it, was discontinued. The child became quiet and rested well through the night—the next day to ensure the health of the child the remedy was again advised and exhibited. The same round of symptoms, the benefit excepted, supervened; and again the pain seemed to subside, and the child became quiet, omitting the exhibition. The gas, eliminated by consequence of chemical affinities, by its abundance or peculiar properties seemed to induce distension, spasm and pain. No doubt this remedy may be exhibited to a noxious extent in so tender a subject. After a subsidence of these distressing symptoms the child appeared to be free from complaint, the debility excepted. The efficacy of the remedy has been proved in Carolina.

If real dysentery, immediately consequent to the exhibition of this remedy, the languor of the countenance subsides; the eye becomes, enlivened; the speech is more articulate and prompt; the voice is stronger; the patient, before he is apprised of it, becomes cheerful, and if not too far reduced, forgets himself and walks across the room. The subsidence out-travels the apprehension of the splenic, and on enquiry he looks round for his complaint as for a thing that is evidently lost.

Having rendered this service in the manner which seems to me most likely to be useful to my fellow citizens—to the poor and distressed; I would now retire. But what are these remarks? Who, at the dreadful tribunal of the public opinion, shall be responsible for their consequences, or rescue them from the deserved neglect of anonymous imposition?

The public's humble servant,
[*Charleston Cour.*] CALEB ABERNETHY.

AN OBJECT WORTHY OF LEGISLATIVE CONSIDERATION.

FROM THE AMERICAN.

In the present state of the country, every suggestion calculated to ameliorate the condition of the people is entitled to consideration; and therefore I present to the public attention

some reflections on the policy of our mortgage laws.

It is believed, that *real estate* is always a solid security for money advanced from one individual to another; and therefore it would seem expedient, that our laws should be so framed as to enhance that security. In Maryland, the value of real estate is greatly diminished, by the difficulties and delays in foreclosing mortgages, when given to secure the repayment of monies loaned.

In commercial communities, banks offered great facilities to men in business, by discounting what is called *real paper* on good personal security. But it is not considered regular in banking, to loan money on accommodation, not even with the security of *real estate*. And it is very much questioned, whether in these times, the banks could be induced to loan their funds to accommodate needy men, though secured by *real estate*. * This is particularly true in Maryland; because the delay, expense and difficulties in availing of the security takes away from its imagined solidity.

But, with individuals who have capital to loan, there would be great inducements to advance upon securities, which may not be desirable to banks. In the country there are many gentlemen possessed of large landed estates, who are known to be embarrassed by considerable debts. They find their estates to afford them no facilities in procuring accommodations; and the reason is notorious; mortgaged men are deterred from loaning to them, on account of the mortgage laws; the lender having no security that he can compel the return of his money, without expense and trouble that are not to be compensated by the legal interest. This consideration takes from the value of real estate in Maryland.

I am fully persuaded that much of the embarrassment of our fellow citizens of the counties, would be removed, by a total change of the mortgage laws. And the benefit of the change would not be confined to the accommodation of those in debt—but every owner of a fee simple estate would be benefited by it.—Estates would be improved in value, by the greater circulation of money throughout the state.

* But when begging the Legislature for their exclusive privileges, they preach a different doctrine!! The Legislature by whom these charters of monopoly, for manufacturing money, have been granted, were professedly, the Representatives of Farmers; and hence we see over certain doors "The Commercial and Farmer's," and the "Farmer's and Merchants." &c. &c. but after all a farmer with his five-hundred acres of rich land, well stocked, could not borrow \$1000 for twelve months, to save his property from execution, and his family from ruin, unless peradventure he could get on his note the all sanctifying name of some *Town Gentleman* "of credit," some *Jeremy Duiler*, who borrows from Peter to-day, to pay Paul to-morrow; and from Thomas to-morrow, to pay Peter the next day. On the other hand, the law ought to give the lender greater facility and despatch, in coming at the property of the borrower; this would ensure punctuality.

The advantages intimated would be immediately perceived in selling and buying property of every description. Competition would be created in every instance when property may be brought into the market. The operation of the change proposed, would not only bring relief to the debtor but likewise to the creditor; for it happens that nine times in ten, the creditor suffers as much for the want of his money, as the debtor does embarrassment in procuring it.

I propose then, after these preliminary explanations, that the process of foreclosing mortgages be simplified and instituted in the county courts by a petition of the mortgagee, praying at the first term a rule nisi, to be made absolute at the second term, unless cause to the contrary be shewn by the mortgagor. By such a process, without prescribing more minutely the practice to be adopted by the courts, a foreclosure may be had in six months, and the creditor be put into the possession of his rights, without the toils and delay of a long chancery proceeding.

Indeed the benefits of the system proposed would be greatly enhanced, by allowing the clerks of the county courts, on application of the mortgagee, to issue a rule nisi to be served on the mortgagor, which may be made absolute at the first ensuing term, unless cause to the contrary be shewn by the mortgagor. It is believed, that in the same proportion that the delay and difficulties of the present system should be cancelled, and expedition and certainty substituted by a system entirely new, would the benefits become greater to the whole country.—In many other states mortgages may be foreclosed in from ten to sixty days. In some they may be foreclosed forthwith, in the Offices of the Clerks of the courts: and cannot be stopped by any frivolous pretence on the part of the mortgagor, who is made liable to the penalty of ten, twenty and thirty per centum on the amount of debt, if he obstruct, without sufficient cause, the ulterior proceeding. In those states, real estate is deemed the best security, and made the basis of long and cheap loans; the safety of the principal and the regular payment of the interest being always the concern of capitalists.

BALTIMORIENSIS.

To the Editor of the American Farmer.

RAT KILLING,

IN ANSWER TO MR. JEREMIAH SIMPLE.

Mr. Skinner,

Sir—In your "American Farmer" I saw a plan, illustrated by the celebrated Mr. Simple, for "killing rats". He states that this method was discovered by his great grand uncle, Nehemiah Simple, Esq. and that it has long remained a secret in the family of Simples. Now, Sir, let me assure you that, I most heartily wish it had continued to be a "secret" till doomsday. before I had undertaken to kill them by such a process. For I did not only incur the most serious inconvenience from trying it, by depriving myself of the use of my barn-floor for several days; but, I do believe that, as Jeremiah

says, my barn has become the general rendezvous, within the last four or five days, for all the rats in the neighbourhood, for several miles round; and I now expect to be compelled to put my own way of killing, into operation before I can, in any degree, get rid of them. But before I say any thing of this, let me state the result of my trial of Nehemiah Simple's RAT TRAP.—I, according to prescription, strewed the barn floor with Indian-meal; and, in less than a "fortnight"—yes, even in two days! I could hear nothing at all but "rigadoons, chasses and balances," or noise enough to raise the dead, as old aunt Margery used to say. When any of her dishes happened to fall and break—What a sad affair was this! all my children kept from their respective avocations, to be employed in making paper and parchment caps, which to my shame, when I went into the barn in marshall order, armed with a cudgel big enough to lay a giant in the dust, I found torn into ten thousand pieces, and not a single rat blind folded—but instead of that, every rascal of them, darted like lightning to their respective holes—and after each, with a great deal of good will, I could have thrust Jeremiah's head! Yes, with all my heart, I wish he were overhead and ears in the "dark mud" in our marsh.—Now, Mr. Skinner, you must know the useless and sad effects of these simple rat traps; and among all the simpletons of the Simple family, I am almost ready to style myself the greatest. However, you will do well by spreading the fact before your readers, of this rat trap's being worse, than good for nothing—at the same time I must beg of you, to make my method known for killing rats, and which I believe to be a good one. It was invented by my great, great, grand father, "Robin Roughhead"; who at length, for his wisdom and benevolent heart, was made a Lord. His plan, which I now call mine, was to wear his hair very bushy, and place carelessly in his locks, crumbs of cheese—then to lie down in the rats' haunt, in a motionless attitude, with his eyes shut—after remaining in this posture for a few minutes the rats will commence a nibble at the cheese, at which time he makes a terrible grab with both hands, and never failed making two or three prisoners. I should not have adopted any other plan but this, only I thought it might be more expedient to knock them down with a stick.

One more remark and I have done—Mr. Simple states, "that he who kills a rat deserves more of his country, than he who makes two blades of grass grow where only one grew before;" and if this really be the case, pray tell me what does Mr. Jeremiah Simple deserve for trying to raise two rats where only one was raised before?

I have the honor to subscribe myself,
Your obedient servant,

REUBEN ROUGHHEAD.

FOR THE AMERICAN FARMER.

Live Fence.

Friend John S. Skinner,

I am of the opinion, that the Bramble commonly called the Sweet Briar, Rosa Eglanteria, if properly

cultivated, would make the cheapest, handsomest, most durable and useful fence, that we can possibly obtain. I think it may be grown in three years, so as to be entirely impassable by any creature that we pretend to fence against. I do not pretend to know, what process would be most proper to use in germinating the seed, in order to have the quickest growth. The seed is now fit to gather, and if there would be so kind as to give this a place, it might induce some perhaps many enterprising farmers, to make experiments, which would be likely to disclose the most efficient mode of growing it. I have commenced some experiments, but have nothing to detail yet.

If any experiments have heretofore been made in growing the sweet briar, for the purpose of fencing, by any of thy correspondents, I should be pleased to hear the result.

Sincerely wishing well to the art of husbandry and thy noble undertaking, I remain thine with due respect,
GIDEON DAVIS.

George Town, P. C. 10th mo. 1821.

* On this point, we submit the following Extracts from Mawe & Abercrombie's Universal Gardener and Botanist, to the notice of Mr. Davis, and others who may be disposed to test the value of the sweet briar as a hedge.

"London gardeners raise great quantities of sweet briar of the common single kind for sale, which they effect by sowing the seed in autumn, or spring, in drills an inch deep, and the plants either remain in hills or are transplanted.

"When required in any considerable quantity, the common single sweet briar should generally be raised from seed, sowing it in drills half an inch deep, either to remain or for transplantation; though when designed to form a sort of hedge to produce a crop of shoots to cut for the supply of markets during summer, it is eligible to sow the seed at once in a drill, where the plants are always to stand.

"And if sown in the autumn, soon after they are ripe, they will sometimes rise the following spring; but, if not sown 'till the spring they are more apt to remain 'till the following year before they rise freely."

A NEW WORK.

A NEW WORK. Proposals are issued at Charleston, for publishing by subscription, *Anecdotes of the Revolutionary war in America*, together with sketches of the characters of the men the most distinguished in the southern states, by their civil and military services, by an "Officer of the Partizan Legion.

"To preserve from oblivion the recollection of many brilliant achievements, which, from the encroachments of time perpetually removing, not only the actors by whom they were performed, but witnesses also, who could give testimony of their existence, is the cherished ambition of the author. In detailing acts of courage and magnanimity that honour the patriots of the revolution, it is equally his hope, to excite in the bosoms of his youthful countrymen, the desire to emulate them. The spontaneous impulse of every heart is his best auxiliary. How grateful to the youth of ambition must it ever be, to read the encomiums bestowed on his ancestors—to dwell on the merits of those great men who had wisdom to plan the deliverance of the United States from a foreign yoke, resolution to attempt it, and valor to insure their independence. In contemplating the dignified firmness of their characters, the extent of their sufferings, and the splendor of the actions achieved in the accomplishment of their momentous undertaking, the heart expands with gratitude—the soul with admiration. Liberty so

honourably gained, appears with more fascinating charms, is cherished with imperishable affections, and the bosom of patriotism feels with full force, how sacred the obligation, to transmit such a blessing, with undiminished lustre, to posterity.

It can only be necessary to present to view, the characters, whose illustrious actions he would celebrate:

"And by their light
"Shall every valiant youth, with ardor move,
"To do brave acts."—*Shakespeare.*

It is expected that the work will be between 5 and 600 pages 8vo.—and its price in boards will be \$3. The Editor of the REGISTER will receive orders for copies: so will the Editor of the FARMER with much pleasure. The name of the author is given to him, with the assurance of a much respected friend, that "he is a scholar, a man of fine taste, and a genuine patriot, who has not only drawn his sword to obtain the independence of his country, but was ready to defend that independence when assailed by the same foe thirty six years afterwards."

HEMP.

A friend in the South, who has communicated several very useful papers for this journal, requests us to obtain information as to the cultivation and management of *Hemp*. Being ourselves, practically unacquainted with the subject, we ask the favor of some of our correspondents in Kentucky, or elsewhere, to give the information desired, and we will promise them very soon, to give in return, a very minute and valuable essay on the culture and management of *Tobacco*, as pursued in that district of Virginia where this article is brought to market in its highest state of perfection. — Request of our southern correspondent as to hemp.

"I would esteem it a particular favor if you would furnish me with an account of the cultivation of hemp, nature of soil, in what manner planted, preparation of land, how many bushels planted to the acre, mode of attendance, when ripe enough to break, how to save the seed, how long to remain in the water to rot, the process after rotting, and any other instructions which you may deem necessary

Improved Mode of cleaning Cotton, Extracted from a letter written by J. R. Bedford, Esq. near Florence, Alabama.

At a more leisure time, than I am at present favoured with, I will send you a description of an invaluable improvement, as an appendage to cotton gins, which operates as a screen and fan, separating trash and dirt from the cotton, as the wheat fan separates chaff from wheat. Its principle is simple, and its construction easy. It has been recently brought into use in the vicinity of Natchez, and with the use of Carver's patent Gins, by many of the planters thereabouts, which separate the cotton from the seed without cutting or breaking the fibres, have acquired a character and commanded prices for their cotton in the New Orleans market, much beyond that which was brought from

other parts of Louisiana or Mississippi. Ten years ago, the cotton from the neighbourhood of Natchez was esteemed not better than Georgia upland or than good Tennessee, and 2 cents inferior to Red River cotton. During the last season it commanded two to four cents more than Red River cotton and 3 to 6 and 7 cents more than Tennessee and Alabama.

RAILWAY.

A new iron Railway has been invented in Bavaria. On an exactly horizontal surface, on this improvement, a woman or even a child may with apparent ease, draw a cart loaded with more than sixteen quintals. On another kind of Railway by the same inventor, in which there is an unseizable descent of six inches and a quarter in 100 feet, a wagon will run alone without any external impulse. *It is proved that those iron Railings are two thirds better than the English, and only cost half as much. A single horse is equal to twenty two on the best common road.*

THE FARMER.

BALTIMORE, FRIDAY, NOVEMBER 2, 1821.

The curious specimen of *Cotton*, said to have been spun like silk, by a worm, which we received under the Bladensburg Post mark, has been sent to a gentleman of great observation and science, from whom we expect to hear on the subject.

The Editor will be thankful to anyone who can supply him with a description of that wonderful curiosity, *WIENS CAYE*, near Staunton, in Virginia—we have the plan, but want the description. It was written by General Calvin Jones, of North Carolina, and published some years ago in a Richmond Almanac, by a Mr Johnson.

We particularly congratulate our agricultural friends, on the intelligence of a rise in the price of their products in Europe; although further advances must be awaited before any settled prices current can be given. Another arrival, which is daily expected, will enable us to speak with more certainty, and at present we give the following, as the latest current prices:

WEDNESDAY, October 31.
The sales of White Wheat this week have been at 160 a 180 cents—Red 140 a 170, one parcel as high as 175 early on Monday morning.

But a fair quotation for this day would be 150 a 152½ for best red wheat of the State, and 160 a 165 for best white—Corn, 65 a 70—Rye, 65—Barley 65—Oats, 33 a 35. A lot of Barley sold on Saturday last for 70 cents.

THURSDAY, November 1.
Sales to day of Red Wheat 153, 153½, 155.
WHARF FLOUR.

Friday	October 26	Superfine Flour	7 75
Saturday	27		7 50
Monday	29		7 25
Tuesday	30		7
Wednesday	31		7

HOWARD-STREET FLOUR.

Friday	October 26	Superfine Flour	8
Saturday	27		8
Monday	29		7 50
Tuesday	30		7
Wednesday	31		7

Whisky, including barrel 33 cents.
MARYLAND TOBACCO, good Yellow \$16—Fine Red \$10—good do. 8—Common \$4 to 6—Second \$12 to 26.
VIRGINIA TOBACCO, a few hlds. sold the present

week for \$5 50 and \$7—and one lot of 18 hlds. at \$6 50

KENTUCKY TOBACCO, 52 hlds. at \$5.
Hickory Wood, selling at \$6 50—Oak do. \$5 50.

Fruit Trees and Thorn Quicks for Sale.

The subscriber has now on hand, and intends keeping a constant supply of trees, of the best selected fruit, at his Nursery near Washington, D. C. Also a great quantity of Man's Virginia or American Hedging Thorn, at Five Dollars per thousand, which will be packed in hds. or boxes, so as to be sent with perfect safety to any part of the United States.

Virginia Thorn Seed prepared for sowing at two dollars per quart.

Prickanthia Thorn at six dollars per thousand.
Pyricanthia Seed at five dollars per quart.

All orders from a distance, enclosing cash, or referring to some person near, who will become responsible for the payment, will meet with immediate and punctual attention.

JOSHUA PIERCE.

Georgetown, D. C., Oct. 26th, 1821.

New and Improved WHEAT FAN.

The subscriber has for sale a New and Improved Wheat Fan, greatly superior to any that he has before seen—it cleans all kinds of Grain and Grass Seeds in a very superior manner—takes up less room, and works with half the force of those in general use—Price Thirty Dollars.

TURNIP CUTTERS. at cash \$30
APPLE MILLS, at cash \$50
DRILLS, at cash \$20 and \$25
Other MACHINERY equally low.
FARM and GARDEN SEEDS of all kinds at last spring prices.

A variety of Books on Agriculture.
E. S. THOMAS.
No. 57 South-Street.

Fresh Grass Seed.

The subscriber has on hand, first quality Orchard Herds' Grass and Timothy Grass, the growth of 1821; Present prices—Orchard Grass \$4 per bushel.

Herds' " 3 "
Timothy " 4 "

ELY BALDERSTON,
No. 61, Smith's Wharf.

Valuable Potomac Land for Sale.

I will sell at public sale on the premises, on Thursday the 6th of December, that valuable estate known as "Stumps Neck," situated in Charles County Maryland, on the Potomac, 25 miles below Washington, containing 1200 acres, one half thickly covered with timber and wood 300 acres remarkably fertile, beside a firm marsh of 100 acres, over which cattle graze at all seasons, can be inclosed by a fence of 200 yards. The marsh can be easily made fit for cultivation, there being no back or current water. There are two first rate herring fisheries on this estate.—Vessels of any burden lay close to the shores, it is distant from the Occoquan Manufacturing Mills only a few miles. The crops, fire-wood, and so forth, can be got to Market with the greatest facility, to a person desirous of engaging in the wood business, many advantages are here presented. The improvements are a small dwelling house, well of good water, large new tobacco house, granary, &c. Persons wishing to view this property will always have an opportunity as the steam boats daily pass within 100 yards. Mr. Speake on the premises will shew the land. Terms one half cash, balance in three years.

GEORGE MASON.

Gunston, Fairfax County, Va.

PUBLISHED BY JOHN S. SKINNER.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua est bona norint
"Agricolae" Virg.

VOL. III.

BAITMORE, FRIDAY, NOVEMBER 9, 1821.

Nov. 34.

AGRICULTURE.

From the London Farmer's Journal.

HOLKHAM GRAND ANNUAL SHEEP-SHEARING MEETING, &c.

(Continued from page 250.)

SECOND DAY.

"The Duke of Norfolk, Earl Marshal of England." (*Great applause.*) In giving this toast, Mr. Coke lamented the absence of the noble duke, which was occasioned by urgent business in town.

"Lord Arundel," with three times three. His Lordship shortly returned thanks, stating that he had one wish to express, which was, the next year to introduce some of his friends, for the advantage they would derive from the agriculture at Holkham.

"The French Consul, and prosperity to the agriculture of France." The gentleman returned thanks in a very polite manner, but we had not the advantage of hearing what he said.

"Count Zamoyki, son of a great agriculturist in Poland." The young gentleman returned thanks in manner, words, and cadence perfectly English; he said it could not be expected, as a foreigner, that he should make a speech, but begged to return his cordial thanks for the honor done him.

The health of a Prussian gentleman was next drank. Mr. Yarran, (as we understood) and prosperity to the agriculture of Prussia.

The Duke of Sussex then rose, amidst great applause. "Gentlemen (said H. R. H.) I feel extremely flattered by the continual testimonies of your esteem and affection: I am sure, by your applause, that you guess the toast I am going to give, and certainly none who live within the reach of Holkham can mistake it for a moment. (*Applause.*) We have all heard the just and universal praises that have been bestowed on his exertions in the cause of agriculture, and we all agree that he richly merits the general thanks and approbation of his country. (*Great Applause.*) His bright example may animate that country in the cause, so powerfully alluded to by Lord Nugent, who was ever ready to express the honest feelings of an Englishman, and not only to express, but to act up to them. It is in perfect consonance with those feelings and fully conscious of the character and sentiments of our liberal and kind host, that I now propose as a toast, 'Mr. Coke, and prosperity to the house of Holkham'—The applause which followed made the walls of Holkham ring.

Mr. Coke returned thanks, and gave "Sir Henry Fan," with three times three.

Sir H. F. returned thanks, and observed that his habits of life unfitted him for speaking, but he did not the less feel the high honor done him. (*Applause.*)

Mr. Coke then alluded to the long and useful life of Sir John Sinclair, whom he was happy once more to see at Holkham. The Board of Agriculture, he observed, owed much to the merits and exertions of Sir John, and although he (Mr. Coke) did not think highly of the merits of the Board, or the good it had performed, yet he was not the less sensible of the practical knowledge and private worth of Sir John Sinclair. Indeed, such was the esteem in which he held his exertions, and particularly in producing the Code of Agriculture, that he intended the following day to present him with a piece of plate. He complimented Sir John on his conversion to the drilling system: in-

deed he now went so far in its favour, that he had brought a friend there to prove that no rents could be paid without it. He was happy to see so many of Sir John's intelligent countrymen present, and ended with giving, "Sir John Sinclair" with three times three, which was drunk with applause.

Sir John, in returning thanks, stated that he did not regret the exertions he had made for the improvement of agriculture; in fact, he considered that as the great basis of the country; no one had ever heard of a great nation called a tounry, or a manufactory, but emphatically a country. This he was sure of, that the corrupted atmosphere of towns never produced such a race of men as those by whom our fields were cultivated; the increase of such a race he had ever considered as a great national advantage, and their decrease as a great public calamity. Sir John then alluded to the sentiments which were formerly so well received at agricultural meetings, and especially the pleasure of enclosing wastes, [*a laugh.*] but these were now opposed by the doctrines of political economy, in which we are told that, to lay out capital in cultivating wastes, is to waste our capital. Another successful sentiment in former times was, breeding in all its branches; but the same stores of new-fangled wisdom abrogate the divine command, and instead of increase and multiply, we are taught to decrease, and subtract and divide, to bring our population into heaven knows what compass, for we have more victuals than can be eaten! (*Applause.*) Indeed, it need not be wondered at, if agriculture be oppressed and discouraged, that food should be wanting, or employment of no value; and since these consequences were both probable, and must be destructive, it was an indispensable duty to give protection to agriculture, and to encourage the profitable industry of the cultivators. (*Applause.*) Sir John then said a few words on drilling green crops, and concluded by giving "Success to drilling in all its branches."

Mr. Coke then mentioned his reception at Aberdeen during his tour in Scotland, and said he was very happy to repay the hospitality he received there. On this occasion the Laird of Skene had com. 500 miles to see him, for which he returned him many thanks, and begged to give his health with three times three. (*Applause.*) The Laird of Skene, a venerable man with long white hair, returned thanks at some length, but we could not catch the import of what he said.

"Mr. Maxwell, M. P. for Renfrew" with three times three.

Mr. Maxwell, in returning thanks, stated, in allusion to what had been so well expressed by Lord Nugent, that it would be in vain to hope for any improvement or success in Parliament, unless they were supported by the independent feelings of those who constituted the Members; no impulse could be given to that body but from their constituents; therefore, until such feelings are called forth, the country would be little nearer to the end of its sufferings, or the ministry brought to a sense of their duty.

"Sir John Johnson," with three times three.

Sir John returned thanks in a very gentlemanly manner, expressing sentiments highly favourable to agriculture.

"The Independent Yeomanry of the county of Norfolk" [*Applause.*]

Mr. Coke then gave the health of "Mr. Owen, of Lanark," with some encomiums on his philanthropic pursuits.—Mr. Owen said, he felt that there was a duty he owed to himself and the company, he might say to the kingdom and the world at large—to show in what it was he differed in opinion and sentiment respecting the remedy for our national distress, from

those which he heard expressed there and elsewhere, he had been thought to entertain opinions not proper, and to look to remedies impracticable; but at least he had been anxiously looking for that which would relieve the country from its evils. He saw there an example worthy to be followed, and a sound conduct that would serve to explain his views in regard to the national question: 40 years ago that country was a waste and they had heard the owner say that a great breadth of it was let at 3s. an acre, and when the lease was out, it was thought a ruinous bargain to take it at 5s. What Holkham was then, is Great Britain now; at that time Holkham had not one sixth of its present inhabitants, and it received food from the neighbouring districts; that is, it was over-populated; but it is now six times as populous, and it grows ten times as much corn, nay twenty times as much as its consumption requires: then is it not obvious that we have not only not too much population, but that if we had six times as many, with proper management, and adequate skill in the powers of direction and distribution in industry and consumption, that we should be all as much happier than we are, as Holkham is happier than the poorest and most desolate village in England?

Mr. Owen here entered into some details and calculations to show that, by no possibility could our taxation be reduced within the limits which appeared to be necessary to the pressure we felt under our reduced means, upon the ignorant scale of the present management of society; he confessed that to diminish burthens must undoubtedly be useful, but other and more important alterations were required in consequence of the application of machinery; we were at present restrained in every way, and cramped in our strength, so that the most industrious and persevering labours could not supply the necessities of life, although we had a power by which we could supply another world with cotton, hose and blankets! Mr. Owen considered that these new and extraordinary powers made it absolutely necessary to re-organize the industrious part of the community, and place them in relation to their wants, and the good of the public and themselves, in a situation altogether different from their present ignorant and destitute condition. Perceiving here some tokens of impatience, Mr. Owen observed, that he was well aware that the subject was too heavy for the occasion; that it would require not one day, but two days, to state it clearly; and therefore, he was induced to run through it in an unconnected manner; he was sorry to detain the company, and would therefore thank them for their attention, and the honour done him, and drink their healths in return.

"H. G. Sheriff of Notts," Col. Wildman,—who returned thanks.

"Capt. Beauchamp, capt. Manby, and the Wooden Walls of Old England."—Capts. B. and M. severally returned thanks.

Mr. Coke then expressed his happiness at meeting with many distinguished agriculturists from the midland parts of the country, and gave the healths of Mr. Jobson, Mr. Champion, and others, who had done him the honour to attend the meeting. Mr. Jobson returned thanks.

Mr. Coke then apprised the company that they must avail themselves of what little light remained, to see the prize sheep out of the wool, and he would detain them only to give one toast more, which was, "The Illustrious Duke who had honoured Holkham with his presence." [*3 hours of applause.*]

The Duke of Sussex rose amidst loud acclamations of applause. His Royal Highness addressed the company to the following effect:—"Gentlemen, I have often told you with what pleasure I visit the county of

those which he heard expressed there and elsewhere, he had been thought to entertain opinions not proper, and to look to remedies impracticable; but at least he had been anxiously looking for that which would relieve the country from its evils. He saw there an example worthy to be followed, and a sound conduct that would serve to explain his views in regard to the national question: 40 years ago that country was a waste and they had heard the owner say that a great breadth of it was let at 3s. an acre, and when the lease was out, it was thought a ruinous bargain to take it at 5s. What Holkham was then, is Great Britain now; at that time Holkham had not one sixth of its present inhabitants, and it received food from the neighbouring districts; that is, it was over-populated; but it is now six times as populous, and it grows ten times as much corn, nay twenty times as much as its consumption requires: then is it not obvious that we have not only not too much population, but that if we had six times as many, with proper management, and adequate skill in the powers of direction and distribution in industry and consumption, that we should be all as much happier than we are, as Holkham is happier than the poorest and most desolate village in England?

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The Duke of Sussex rose amidst loud acclamations of applause. His Royal Highness addressed the company to the following effect:—"Gentlemen, I have often told you with what pleasure I visit the county of

Norfolk; there is that charm in its hospitality, and that magic in its independence, that all cares are thrown from my heart, and delight and satisfaction overflow. The kind and hospitable reception, equally extended by the owner of this noble mansion to the highest and the lowest, is one of the greatest gratifications I have ever experienced. To see my noble host surrounded as he is by the first nobility in the land, by men of high rank, whose ancestors, as well as themselves, have proved their fidelity to their country, (applause) and by commoners of the first character and talent; and lastly, by yeomanry from all parts of the kingdom.—is so gratifying to my heart, that, as one of the reigning family, though a younger branch of that family, I cannot but reflect on that good-will and good understanding which proceed from esteem and attachment, and produce blessings to every community of men. It appears to me to be duty of a Prince so to govern, and so to be beloved, (applause) that his subjects from the highest to the lowest may cheer him with their praises and bless him with their affections. [Great applause.] So may he lay his head on his pillow, conscious that he has the good will of every individual, which can only be obtained by a steady support of the liberty, prosperity, and happiness of the people." [Shouts of applause.] His Royal Highness concluded by giving "The respectability of the Crown, the durability of the Constitution, and the prosperity of the people." [Long continued and loud plaudits.]

THIRD DAY.

The business of this day commenced with an inspection of the Prize Showdowns at the slaughter-house. Their weights were as follow—

Mr. Blyth's Two-shear.—Carcase 7st.; fat 1st 1lb; pluck 9lb. skin 8lb.

Mr. Paul's Two shear.—Carcase 8st. fat 1st. 3lb. pluck 9lb. skin 9lb.

Mr. Kendall's Two-shear.—Carcase 7st. 11lbs. fat 1st. 3lb. pluck 10lb. skin 8lb.

Mr. Harvey's Two-shear.—Carcase 8st. 6lb. fat 1st. 5lb. pluck 9lb. skin 9lb.

Mr. T. Moore's Three-shear.—Carcase 6st. 10lbs fat 12lb. pluck 9lb. skin 7lb.

Mr. Blyth's Three-shear.—Carcase 6st. 13lb. fat 1st. 6lb. pluck 10lb. skin 10lb.

Mr. Oakes' Shearling.—Carcase 9st. fat 1st. 4lb. pluck 9lb. skin 8lb.

Mr. Hill's Shearling.—Carcase 8st. fat 1st. pluck 8lb. skin 7lb.

SLAUGHTERED EXTRA SHEEP.

Mr. Butcher's Two-shear.—Carcase 8st. 8lb. fat 1st. 6lb. pluck 9lb. skin 5lb.

Mr. Shearing's Three-shear half-bred.—Carcase 10st. 8lb. fat 1st. 4lb. pluck 12lb. skin 10lb.

Mr. Coke's Two-shear.—Carcase 8st. 8lb. fat 13lb. pluck 10lb. skin 9lb.

There was also a slaughtered Showdown Lamb of Mr. Coke's which weighed 2st 8lb.

The company then proceeded on their ride over part of the park, and to Wells and Warham; inspecting some admirable crops of wheat, &c. belonging to Mr. Thomas Moore, and Mr. Bloomfield, at each of whose houses the company halted some time. In the yard belonging to the latter, the company were much interested in viewing a fine dairy of Devon cows. It was the intention to have gone to Wighton, but the pressing business of the afternoon occasioned Mr. Coke to hasten their return, in order to gain time by dining somewhat earlier.

THE DINNER.

The company to day was still more numerous than on the former days, and the anxiety to witness the delivery of the premiums, and hear the speaking, rendered the pressure very great in the statue gallery. After the cloth was drawn, the two first toasts were—"Prosperity to Agriculture." "A fine fleece on a fat carcase."

Mr. Coke then gave the health of Dr. Rigby, Mr. Dalrymple, and others, from Norwich. Dr. Rigby returned thanks, bestowed many encomiums on the

agriculture of Holkham, and stating a variety of particulars connected therewith; particularly the early sown turnips, the general excellence of that crop, and the extended cultivation of mangel wurzell. In regard to his experimental crop of early York cabbages, he begged to observe that they were planted too near: the rows should have been at least three feet apart, to admit the working of the Northumberland plough the whole season of their growth. He then bestowed much praise on the cultivation and manufacture of flax, so admirably conducted under the direction of Miss Coke; and, lastly, entered into the Agricultural question, and the Report of the Committee. On this subject the good Doctor expatiated at some length, and with much point: he complimented Lord Emsay, Mr. Western, Sir Francis Burdett, Mr. Hume, &c. and congratulated the company on the exertion of such talents for the relief of the country. He was convinced, that the only effectual relief would be found in the diminution of public expenditure, and the reduction of taxes; and here he could not but particularly applaud the exertions of Mr. Hume, who had made an important impression on the House, and happily on the measures of Ministers. He had forced them to say *Yes*, and though it was but little *a la Coke*, he concluded by giving, "Mr. Weeks," a gentleman from America, with three times three, which was drunk with great applause. Mr. Weeks returned thanks in the following words—

"Sir, Nothing can be more acceptable to the feelings of Americans than the friendly expressions of Englishmen. I have often heard much of the hospitality and agriculture of Holkham, and have long had a great desire to be present at one of its annual meetings; in realizing that wish, I must say that my gratification has far exceeded my most sanguine expectations. I regret, gentlemen, that I have not the ability to do justice to the impressions with which I have viewed this scene, nor to reply in an adequate manner to the kind expressions of our worthy host towards my country and countrymen; but I cannot omit to say, that his uniform friendship experienced by me in times past, as well as at present, will ever be held in grateful recollection.—May I avail myself of this opportunity to thank his Royal Highness the Duke of Sussex for the flattering manner in which he was pleased to take notice of my country on Monday last.—I thank you gentlemen, for the honour you have done me in drinking my health. I beg leave to drink yours in return, wishing prosperity to the agriculture of Great Britain."

"Mr. Burroughs, and prosperity to the agriculture of Ireland."

Mr. Burrows returned thanks.

Mr. Coke prefaced the next toast by stating some particulars respecting his early political life. "I was early led (said Mr. Coke) to respect the Americans, and came into Parliament before the commencement of that disastrous and unnatural war which separated the two countries; under a mild and wise government, without doubt, they would have gone hand in hand till now, and have formed a bond of union equal in strength to all the rest of the globe. But evil councils prevailed,—ambitious and tyrannical measures were to be enforced—and the war commenced; I was the only member from this county out of twelve who voted against it; I thank God, I look back with satisfaction to that conduct, and have pursued the same principles ever since. It is not generally known and I have never mentioned it to my friends in this house, that I was the person who moved to put an end to that war; it was carried, I believe, 178 to 177—the majority, however, was but *one*. Lord North moved that the debate should stand over to the following day; but Mr. Fox gave me a hint, and I moved that an address should be carried up to the throne. Lord North seeing that not a man would stir, at length gave way, [though not till near seven o'clock,] and I carried up the address in leather breeches, boots and spurs, as a county member; I received from his majesty a most gracious answer, and there was an end. But would any man think, or will it be believed, that the traitor General Arnold stood as near to the King when he received the address, as I am to the Duke of Sussex! a most lasting and lamentable proof of that fatal policy of which we have since seen such unhappy effects."—Mr. Coke then proceeded to recapitulate the present disastrous condition of the country, stating that the effects of that policy which had never been altered, had brought the Kingdom to the very brink of destruction. Those meetings which had always been purely agricultural, had

been staidered as being political, but that did not prevent the attendance of gentlemen of all parties; the meeting continued to increase in number and respectability, and he had now the happiness to see the smallest attendance he had ever witnessed. Mr. Coke then alluded to the Report of the committee in terms similar to those which he had used on Monday, saying that all reserve was now at an end, and that political discussion must now take place to rouse the people to a sense of their situation, and to effect the means of their relief. "For myself (said Mr. Coke), I should not be worthy of your confidence for a moment if I did not speak my sentiments in a bold and manly manner; I have long been your faithful representative, which I do not desire to continue to be, one day longer than my conduct deserves your approbation; I love the country, and I love liberty, [applause] and am always impatient to get home! In fact, I suffer I know not what, cooped within the pestiferous walls of that house which should be purified with virtue and patriotism; here I breathe a salubrious air, but there I am stifled with corruption. [Laughter and applause.] So glad am I to get home again, and in three days I am as well as ever." Mr. Coke concluded by giving, "Mr. Weeks," a gentleman from America, with three times three, which was drunk with great applause. Mr. Weeks returned thanks in the following words—

"Sir, Nothing can be more acceptable to the feelings of Americans than the friendly expressions of Englishmen. I have often heard much of the hospitality and agriculture of Holkham, and have long had a great desire to be present at one of its annual meetings; in realizing that wish, I must say that my gratification has far exceeded my most sanguine expectations. I regret, gentlemen, that I have not the ability to do justice to the impressions with which I have viewed this scene, nor to reply in an adequate manner to the kind expressions of our worthy host towards my country and countrymen; but I cannot omit to say, that his uniform friendship experienced by me in times past, as well as at present, will ever be held in grateful recollection.—May I avail myself of this opportunity to thank his Royal Highness the Duke of Sussex for the flattering manner in which he was pleased to take notice of my country on Monday last.—I thank you gentlemen, for the honour you have done me in drinking my health. I beg leave to drink yours in return, wishing prosperity to the agriculture of Great Britain."

"Mr. Sabatier," from Nova Scotia.

Mr. Sabatier, in returning thanks said, that the province to which he belonged had been a thriving country, but certainly deficient in agricultural knowledge. He had done himself the honour to come there for the advancement of that important pursuit. He paid some high compliments to the Duke of Kent, and described the many obligations which Canada was under to his wise and beneficent administration of the government. He also spoke very handsomely of Sir Alexander Cochrane, and mentioned the introduction of fine sheep and cattle, and horses, which, however, had been so crossed that the several breeds were considered deteriorated. He concluded by expressing his obligations and thanks to the company.

"The hon. Mr. Harbord, and Admiral Luken." (Great applause.)

Mr. Luken, a very young gentleman, returned thanks in a most easy and eloquent manner, with good emphasis and good discretion, which drew forth the lively plaudits of the company.

"Symmetry well covered."

"Mr. McKenzie, and prosperity to the Agriculture of Scotland."

Mr. McKenzie returned thanks.

"Mr. Bloom and prosperity to the town of Wells."

Mr. Bloom returned thanks.

Mr. Coke then prefaced the health of Sir Francis Burdett by observing, that he was almost one of his earliest friends, and no one he esteemed more as a patriot or as a man. He (Sir Francis) had indeed been assailed by all manner of calumny, and called a Jacobin and what not; but he could safely affirm that the country had not a better friend, nor the King a

more loyal subject. He concluded by giving 'Sir Francis Burdett,' with three times three, which was drunk with loud and long continued cheers.

Sir Francis rose to return thanks; but we can give only a sketch of what he said. The correctness, ease and eloquence of his address, made a striking and lasting impression on the company. His exordium was general and complimentary; and after sketching the good effects of Mr. Coke's conduct and example at Holkham, he drew a picture of a kingdom's welfare, and showed how the same virtue, mildness, and moderation, would happily govern mankind. If a parish was but a large family, so a kingdom was but an aggregate of parishes; and the same principles, if honestly applied; the same laws if faithfully administered; the same conduct, if virtuously followed, would equally promote the prosperity of all. He made were a most elegant and appropriate allusion to the presence of the Royal Duke, who he (Sir Francis) was sure could see nothing more congenial to his feelings than the effects of such conduct as he had described, and the blessings it was calculated to diffuse. His Royal Highness could not fail to observe in such a scene, how grateful were the unbought affections of men, and how little a king of England needed for his defence, more than the love of a grateful and happy people. Sir Francis then alluded to his health being proposed a second time, which he could only impute to the wish Mr. Coke had to introduce him to the knowledge of the Freeholders of Norfolk. He took notice of the slanders alluded to by Mr. Coke, and defended his character from their venom with much force. He disclaimed the imputation of Jacobin principles. No man he said, could be more anxious than himself, that the King of England should be the greatest and most beloved King in the world; his political faith was that of the constitution of England; the original and true constitution of our forefathers, without any new gloss, or modern corruption. He next alluded to what he had suffered, for his indiscretion, perhaps, but certainly for the sincerity of his attachment to civil liberty, and the honest expression of his feelings when he saw it assailed and outraged in the manner it had been. He was happy to say that he had many friends who did not think him deserving those marks of disgrace with which it had been thought fit to stigmatize his conduct; among the rest, the Royal Duke then present did not think the walls of a prison, in such a case, a mark of public infamy [*loud cheers.*] nor disdain to visit an unjustly suffering subject. He professed not to understand much of agriculture and general cultivation; but there was one plant, indigenous to this soil, which he delighted to cherish, and without which all other cultivation was barren—he meant the plant of liberty, which was at once the spring and solace of toil, and gave to fleeting life its lustre and perfume. (*Great applause.*) He observed that there was in agriculture an implement called a *tormentor*, the use of which he believed was to eradicate weeds from the soil; this implement he imagined had been very much used about Holkham, as he saw no weeds remaining, from which he concluded that all the farmers of Norfolk had become *radicals.*—(*Laughter.*) Now, to carry on the metaphor, he conceived that an honest House of Commons would be a political *tormentor*, which would root out the noxious weeds of corruption and invigorate the growth of public prosperity. It was a principle of the British constitution, that the persons who pay the taxes should appoint those who impose the taxes; the departure from this principle was the sole cause of our present calamities, and no cure could be found for them but in our return to it. This was evident from facts, because the ministry had done nothing, and would do nothing for the public relief, but referred that to the operation of time, which time could only make worse. The hon. Baronet next adverted to the principles upon which he opposed the American war, stating how much he rejoiced in the success of those principles in a country which must be considered the asylum of civil liberty. For our part, we had been in the progressive violation of those principles ever since, and the practical effects

were now too apparent; but, unhappily, they were visited upon the heads of the innocent instead of the guilty. Sir Francis proceeded at considerable length to illustrate his argument by instances quoted from history, shewing the destructive consequences of profusion and extravagance, and the contrary good effects of equity and economy; and concluded by repeating his thanks to the company; and adding, that such was his satisfaction and delight at what he saw at Holkham, that he hoped to be present at its future meetings as long as he lived. The speech was received throughout with great applause, and extraordinary marks of attention and respect.

Mr. Coke then rose, and proposed the healths of the clergymen who had done him the honor to attend that meeting, and took that opportunity to vindicate himself from the calumnies that had been circulated against him, as an enemy to the established church, and particularly to the tithe system. This latter was undoubtedly added to rouse the clergy in general to resentment, and might perhaps be the more easily believed on account of his known attachment to agricultural improvement. This was a subject he did not wish to enter into at length on that occasion; he wished the church and its ministers to have their due, and was no otherwise an enemy to tithes, but as he could wish that the maintenance of the established church was put on a better footing.

“Mr. Archdeacon Bathurst, and the clergymen present.”

The Archdeacon in returning thanks, took a pretty general and extensive view of the tithe system with reference to the present distresses of agriculture, and considered that rents and tithes ought to be generally and fairly reduced according to the value of produce. He alluded to the consequences of the expenditure of the late war falling exclusively upon the industrious classes; on the contrary, those who reaped the benefit should pay for it; that is to say, men of large property, and especially monied men. The taxes on the poor should be reduced; for neither in reduced rents and tithes together, could the farmers find sufficient relief while the taxes on necessities remained so oppressive.

Mr. Glover returned thanks in a few words complimentary to Mr. Coke, and favourable to the character and views of Mr. Owen.

(To be continued.)

ADDRESS

TO THE FARMERS OF PENDLETON DISTRICT, S. Carolina.—September 8, 1819.

The committee appointed by the Farmers' Society at the August meeting, beg leave to report the following address, to the inhabitants of this District, as a preface to the queries, proposed to be published; and they recommend that the Committee on Publications be directed to cause the Address and Queries to be inserted in the Pendleton Messenger.

To the Farmers of Pendleton District—

The Pendleton Farmers' Society has been organized since the year 1815; and perhaps they have been remiss, in not stating, publicly, before this time, the objects of their institution, and the means by which they hope for success.

The great object of this society is the agricultural improvement of the district, by directing the attention of their brother farmers to the various branches of rural economy, and by the introduction of the most modern and approved system of husbandry; and surely it is obvious to all, that such improvement is necessary to our welfare and prosperity. We are the largest, and it is believed, the most populous district in the state; but our importance is reduced by a

want of information on many essential points, and particularly on agricultural subjects. Our fellow citizens elsewhere, are making rapid advances in the arts which improve and adorn society; the spirit of internal improvement is awake and active; science flourishes, and all classes of our countrymen are vying with each other in efforts to raise our national character, both at home and abroad. And shall we be backward on such an occasion? Shall we be the only idlers in a contest for the prosperity of our country? Shall we be the drones to devour the labours and the talents of industry and skill? We trust you have too much virtue, too much zeal, and too much patriotism to suffer such an imputation to be cast upon you.

Although our lot has been cast in a remote corner of the state, among rugged mountains, with a vast proportion of our soil unfit for cultivation, and what is worse, without a convenient conveyance to market, yet we have here many advantages and blessings to be thankful for. Our district is among the most healthy in the union—our land is cheap; and a sufficiency of it of tolerable quality, is within the reach of every intelligent and industrious farmer. If we make less money, we have less need of it here than elsewhere—a little judgment and a little industry will procure from our fields and our flocks all the requisites for human comfort. Foreign luxuries ought to be abandoned. There is hardly an article among them which had not better be relinquished. Let us all unite with zeal and activity to increase the solid comforts of home.

To promote these praise-worthy objects, to enhance the real comfort and happiness of every farmer in the district, and to make him more respectable and independent, the Farmers' Society was instituted. The legislature of the state, perceiving the happy consequences likely to result from their exertions, granted them an act of incorporation in the year 1817. They have since acquired a little property, and as it may with truth be said their object is to be useful, will not their brother farmers in the district unite with them in promoting such an object? The effect of combination is great; a few individuals, however zealous, can do nothing; but a society composed of members from all parts of the district, can, and will be useful in the highest degree. Much good has already been effected, many instances of which are on the records of the society. The annual contribution of each member is a mere trifle, but the aggregate of contributions would enable the society to extend their means of information and usefulness. Practical books, good ploughs, harrows, and other implements of husbandry, and good seeds of various kinds, would be purchased. Larger premiums could be given; and it is hoped that the day is not distant, when annual fairs shall be established at our anniversary, to which all the farmers of the district may resort, for the sale or

Many good substitutes for Coffee may be found. Rye well cleaned, washed, and dried in the sun, then parched and ground, makes a beverage hardly to be distinguished from coffee, and more wholesome. Carrots cut in very small squares, dried hard in the sun, and then parched and ground, is another good and wholesome substitute.

purchase of fine animals, fine samples of grain or the products of the loom, the workshop, the dairy or the orchard.

The views and objects of the society having been thus fairly and candidly stated, the farmers of the district are invited to become members. There is hardly a man who cannot give information on some point, and if we all contribute what we know, we shall obtain a mass of information which must be useful. It is not essential that those living at a distance should attend every meeting, though as punctual attendance as circumstances will permit is much to be desired. The society already consists of eighty members, and new members are admitted at every meeting.

As it may be inconvenient for some farmers to become members of the society, who are yet desirous of assisting it in so good a cause, by all the means in their power, they are respectfully requested to communicate any information they possess, addressed to Joseph V. Shanklin, Esq. our corresponding secretary. The society know that practical farmers are not literary men; the style or manner of communication is perfectly immaterial; and the society, as a body of plain farmers themselves, want plain facts, in plain language. They therefore hope that practical farmers will write to them, and lest any one may suppose the information he has to give may not be on a subject of sufficient consequence, they have directed a list of questions on the most important subjects to be added to this address. This mode, it is hoped, will encourage farmers to write, as they have nothing to do but to answer a plain question; and the example once set will be followed by others.

QUERIES.

Manures.—Have you made any experiments with manures? Of what nature were they? Have you ever used fresh stable manure? What is the difference, in point of strength, between it and rotted dung? In what quantity, to what soils, in what manner, at what time, and to what crops have you applied it? To what crops with the greatest success? Have you ever made a compost heap, viz. a heap consisting of dung, earth and vegetable matter, such as weeds? In what proportion did you use each of these materials? What is the best method of making and collecting the greatest quantity of manure on a farm? Have you ever hauled any creek mud, or other stuff from ponds or branches, on your fields, or to your manure heap; and with what benefit? What is the nature of the soil to which you applied this manure? Have you ever used ashes as a manure? Were they leached or unleached? What is the difference in value between these as manures? To what soils were they used, and with what effect? Do you not think unleached ashes more beneficial when mixed in the compost heap? Have you ever applied lime to your land? Do you know any thing of marl in your neighbourhood? It is a whitish, clayed earth, and will effervesce when vinegar is poured on it.

Soils.—Of what nature is the soil upon which your experiments have been made? Is it sandy or clayey or loamy? What particular grains or grass have you found best adapted to particular soils? Is there any substance in your

soil unfriendly to any particular vegetable, or plant, and how have you or can you correct it?

Tillage.—How deep ought lands to be ploughed? Should the black mould or top earth only be turned up, or ought the yellow or red earth underneath to be turned up also? In what proportions ought they to be mixed? What is your method of destroying weeds and grass in your fields? Do you follow your land? Do you perform this operation in winter and summer? Are your fallows naked, or otherwise? Do you lay your fields in ridges or lands? How wide are the latter? What is the best method of preparing land for the reception of seed, particularly for wheat? When do you haul your manure on the land? Do you spread or drill it?

Stock.—Are not oxen more profitable than horses? What is the difference of keep and work between a pair of horses and a yoke of oxen? Do you use mules? Are they better than horses? In what respects? Have you ever used large wooden hames for horses? Do you prefer them to collars? Do oxen draw best with the collar or the yoke? Did you ever yoke them by the horns? Was the yoke placed in the front or back of the horns? How can you improve the breed of sheep, as respects the quantity and quality of wool and mutton? How, and upon what, do you maintain your ewes and lambs, in the winter and spring? Is it profitable to shear lambs the first year? Do you shear your sheep once or twice a year? What are their disorders, and what remedy have you for them? What is the best method of rearing calves? What is the best method of fattening cattle? How best kept for the pail? What is the best method of making cheese and butter? Do you know the disorder in cattle called milk sick? Do you know any cure for it? What occasions the hollow horn? How is it most easily and effectually cured? How do you raise hogs? What breeds are the best? Which is the cheapest and the best mode of preparing them for the knife?

Grain.—Which is the most productive species of wheat, the red, white, yellow bearded, or naked? Is winter better than summer wheat? In what proportion? What are the causes of smut, blast and mildew? How are these prevented or remedied? What is the best method of preserving wheat between harvest and threshing time? And between threshing time and grinding? Is rye a profitable crop with you? How do you cultivate oats? Are they worth cultivating? What species have you found most productive? Do your soil and climate suit barley? What is the greatest quantity of this grain, that you know of having been made to an acre? How do you cultivate indian corn? In what manner is the ground best prepared for it? How should it be manured and tended? In what manner and to what extent can beans and peas be cultivated? What is the best time for cutting up the vines? How best cured? What is the greatest weight of peas and cured pea-vines that you have obtained from an acre?

Grasses.—What grasses make the best pasture? What the best hay? What facts have you relative to the culture and value of lucern,

St. Foin, timothy, and clover, *feather-grass* or white top, and orchard grass? Cannot some of our native grasses be greatly improved by culture? What sort of pasture agrees best with sheep, neat cattle, horses and swine? What particular directions can you give on the subject of grazing? Are you acquainted with the narrow-leaf plantain? Do you esteem it as a pasture tree?

Fruit Trees.—What kind of apples afford the best cider? What is the best method of grafting, inoculating, and planting of orchards? In what manner do you cultivate peach, plum, nectarine, apricot, quince, and cherry trees? Will nectarine trees, not grafted, ripen their fruit? May not the fig be successfully introduced into the district?

Fermin.—How do you destroy moles? Will the palma christi drive them away? How are grubs in your corn and flax destroyed? Which is the best method of getting rid of the bugs that destroy your melon, cucumber, and pumpkin vines? How do you destroy the canker worms and caterpillars that infest orchards? How overcome the lice and flies which so greatly injure cabbages and turnips?

Bees.—Have you any improvement in the management of bees?

BRIGHTON CATTLE SHOW.—1821.

Proceedings of the Massachusetts Agricultural Society at the late Brighton Cattle Show.

Continued from page 251.

FOURTH REPORT.

The Committee on Domestic Manufactures award as follows:	
To William Sheppard, of Watertown, for the best specimen of Broadcloth, the first premium	\$30
To the Wolcott Woollen Manufacturing Co., for Broad cloth, the 2d premium,	20
To Stephen Blottrick, of Frammingham, for Woollen Cloth of household manufacture, the 1st premium,	12
To Jonas Pollard, of Boston, for ditto, 2d premium	8
To the Wolcott Woollen Man. Co. for Cassimeres, the 1st premium,	15
To Edward Howard, of Dudley, for ditto, the 2d premium.	10
To the Wolcott Woollen Man. Company, for Satinets, the 1st premium,	10
To Isaac Curtis, Jr. & Co. of Stockbridge, for do. the 2d premium,	6
To Nathan Barrett, of Concord, for the best specimen of Carpeting, the 1st premium,	10
To Bilsley Dolans, of Braintree, for the 2d best, the 2d premium	7
To the same for linen Diaper, the 1st premium,	10
To Joseph Richardson, of Hingham, for do. the 2d premium	5
To Thomas Hart, of Dorchester, for Cotton Shirtings, the 1st premium,	20
To Wm. Phillips & Co. of Dedham, for Worsted Hose, the 1st premium,	5

To Lemuel Healey, of Dudley, for sewing Silk, the 1st premium, 5
To Caroline Bronsdon, of Milton, for do. the 2d premium, 3
A piece of Stair Carpeting, manufactured by Miss Anna Edes, of Charlestown, was of sufficiently good quality to be entitled to a premium, and would have obtained one had there been the number of yards required by the Trustees.

A premium was withheld for the same cause from Mrs. Oliver Fiske, of Worcester, who presented a piece of Flannel.—In point of fineness, softness and strength, it was thought entitled to favorable notice. The committee exceedingly regretted in another case, that of Mr. James Howarth, of Andover, that they were precluded by the unreasonable entry of his Flannels, from giving them the advantage of a premium. The specimen was thought very good, and perhaps there is no article of domestic manufacture more deserving of liberal encouragement.

The Satinets of Daniel Ellis & Son, of Walpole; the Shirts of the Thread Manufacturing Company, of Seconk; and the Gauzes of Archibald Kennedy, of Seconk; although they were entered too late for examination by the committee, were inspected by the great number of persons who visited the hall on the second day of the exhibition, and whatever be the merit of these fabrics, they have obtained their fair reputation with the public, which will in measure allay the disappointment of the manufacturers, who lost their opportunity of obtaining premiums.

The Trustees have offered the following gratuities:

To Elisha Hammond, of Brookfield, for a specimen of Rose Blankets, better than any, exhibited at Brighton in former years, 5
To Julia A. Drury, of Marblehead, for a Hearth Rug, quite equal in quality to the best imported, 5
To Mary F. Baldwin, of Chelmsford, for a Hearth Rug, of prime quality, and Eace Veil, 5
To Abigail Little, of New-Braintree, for a Hearth Rug, 3
To Elizabeth Denny, of Worcester, for do. 3
To Rebecca Warren, of Chelmsford, for do. 3
To Mrs. Lewis, of Dorchester, for a Silk Sash, 2
To Priscilla W. Drew, of Plymouth, for a Linen Lace Cap, 2
To Betsy Merrill, of Salisbury, for Linen Thread of a very fine quality, 5
To Elizabeth O. Spear, of Dorchester, for a Cotton Counterpane, 5
To Hannah Hoar, of Lincoln, for do. 4
To Phoebe Whittemore, of South Boston, for do. 4
To Mary Brown, of Hingham, for an imitation Leghorn Bonnet, 5
To Lydia and Hannah Marshall for do. 5

(These specimens were, in neither case fine; but every example of this manufacture is deserving of reward, because it is of recent origin here. The material is a native grass; the fabric is more durable than that of straw, and may be

expected soon to rival the best specimens of a very expensive imported article.)

To Ebenezer Blake, of Wrentham, for Straw Bonnets, (of a finer quality than any exhibited at either of the former shows, 5

To Benjamin Wheeler & Co. of Frammingham, for specimens of Straw Bonnets, very beautiful, 5

To Ann Dalrymple, for a fine Straw Bonnet, 3

To Mr. Cephas Leach, of Easton, for Straw Bonnets, 3

(Mr. Leach would have received a larger gratuity had his specimens been presented on the day appointed for the examinations.)

To Misses Sarah Polly and Elizabeth Lewis, for a variety of Fancy articles manufactured from the Down of the Turkey, to each 52

To Miss Odienne, of Boston, for a Gown made from Cotton and the ravellings of an old silk gown, 4

(This article, together with several specimens of Thread, made by two females whose names do not appear, from shreds of silks and gauze taken from the sweepings of a milliner's shop, may be classed among the savings of a minute economy not to be mentioned but with respect. Examples of this sort serve to suggest new resources to the necessitous, and add to the stock of useful employments for female children in numble life.)

To Jane Swan, of Metheun, for fine Linen Thread, 53

To Hannah Sparhawk, for Worsted Hose, 2

To Mrs. Hawks, of Lancaster, for do. 2

To Mary Ann H. and Margaret P. K. Rider, for needle work, each 2

To Mr. John Johnson, of Marblehead, for a Caplin Seid and a Herring Net, manufactured from Cotton, 10

(This is a new article; the public is indebted, as far as the committee could learn, to Mr. Johnson, for introducing the use of Cotton for this purpose. The fishermen of Marblehead, it is said, prefer Mr. Johnson's nets to those made from Hemp; whether of foreign or domestic manufacture.)

The Water-proof Hats, of a superfine quality, exhibited by the Watertown Hat Manufacturing Company, appear to unite the qualities of great firmness and lightness. They were finished in the best style, and judging from these specimens, their manufacture has attained to great perfection.

A gratuity of twenty dollars was tendered to this Company at the last annual exhibition. A similar mark of approbation is certainly as well merited, to say the least, the present year.

The Trustees have sanctioned a gratuity of ten dollars to Col Johnson Mason, of Medfield, for a specimen of Duck made with a machine, the invention of Dr. Jesse Fox, of Saugus, and which has received some improvements by Mr. Mason. The sum given to Mr. Mason bears no proportion to a just estimate of the importance of the manufacture, or the merit of the specimen. The thread is very even and no defect could be detected in the fabric, although critically examined by several navigators. It

was thought by these gentlemen to bear a comparison with the best quality of duck of foreign manufacture.

The Broadcloths exhibited the present year were not of the class of extra fine. They were the best of that description of cloths which can be afforded in our market cheaper than the imported. The cloths of domestic manufacture worth from \$2.50 to \$6 the yard, have taken the place of the imported cloths of the same kind, and have put a stop, almost wholly to the importation; which has been progressively diminished for some years. Those of the committee more particularly conversant with the subject, and whose experience may justify an expression of an opinion, entertain no doubt that the manufacture of middling and fine cloth may be considered as less firmly established among us than that of extra fine, and that under equal advantages of capital and good management, it will not be less profitable. It is creditable to our Woollen Manufacturers, that the finishing is now in no degree inferior to that of the English. The fixing of the blue dye, one of the greatest difficulties in the art, is now well understood. The blue is made as permanent as any other colour. There is the same variety in the shades as in the English cloths, and there is no want of brilliancy.

The progress of household manufactures in all their endless variety, is less apparent than that of the fabrics made by incorporated companies, because the former are carried on in retirement—are brought into the market in small parcels, without pretension. Their origin is unknown to the public, and they are often admired and purchased (particularly fancy articles) as the products of the ingenuity and taste of foreign countries. So far as respects articles of the first necessity, the domestic manufacture is growing so rapidly as, every year, to diminish the importation of many kinds, and to stop altogether the importation of a few.—Excessive bounties from government for the purpose of encouraging domestic manufactures must, it is obvious have a contrary tendency—since by increasing the profits of a business already lucrative, which would be the effect of this policy, too much capital would be diverted into every successful branch of manufacture, thus artificially raised into public notice, and ruin would be brought upon those very establishments, which are now enjoying an amount of profits, certainly well earned, but sufficiently ample for the desires of reasonable men, and certainly so for the public.

RICHARD SULLIVAN.
ABBOTT LAWRENCE.
JOHN LEMIST.

Brighton, Oct. 11th, 1821.

FIFTH REPORT.

The Committee upon the Ploughing Match, consisting of E. Hersey Derby, Chairman, Isaac Davenport, Silas Gates, and Paul Upton, Esqrs, ask leave to

REPORT:

That a piece of green sward land was divided into lots of a quarter of an acre each, that there were several competitors, viz:—Silas Dudley, one pair of cattle, himself both plough-

man and driver—time employed, 43 minutes. Lewis Lilly, one pair of cattle, himself ploughman and driver—53 minutes. Joseph Curtis—two pair of cattle, with Nelson Marvel ploughman, and ——— Moulton driver—55 minutes. Samuel Ward, one pair of cattle, Clark Jenny ploughman, and Elias Sawyer driver—57 minutes.

Aaron D. Williams, two pair of cattle, David Morrison ploughman, and Abijah Seaver driver—64 minutes. Jonas L. Sibley, 1 pair of cattle, Samuel Sibley ploughman, and Jerrey L. Batchellor driver—44½ minutes. And Darius Putnam, one pair of cattle, himself ploughman and driver—39 minutes. Places being assigned by lot. That the work in general was very excellent, and that they have found great difficulty in awarding the premiums. They consider the ploughing of Messrs. Curtis and Williams as rather the best; but being bound by their rules and regulations to consider not only the excellence of the work, but the economy of labor as well as the time employed, and considering that both Messrs. Curtis and Williams, each had two yoke of oxen and a driver, and that Mr. Dudley had only one yoke of oxen and no driver; and also considering the excellence of his cattle, and his peculiar skill of managing them, together with the goodness of his labor, they have been induced to award

To Mr. Silas Dudley, of Sutton, as owner of the plough, the first premium, \$20—as ploughman, \$10—as driver, \$5.

To Mr. Curtis, of Roxbury, as owner of the plough, the second premium, \$12—to Nelson Marvel, as ploughman; \$5—to ——— Moulton, as driver, \$3.

To Mr. Aaron D. Williams, as owner of the plough, the third premium, \$8—to David Morrison, as ploughman, \$4—to Abijah Seaver, as driver, \$2.

They had great pleasure in observing that all the teams were very fine, and under excellent management.

E. HERSEY DERBY, *Chairman.*

Brighton, Oct. 11, 1821.

SIXTH REPORT.

The Committee on Working Oxen, consisting of Messrs. John Wells, Samuel G. Derby, and Elijah Perry.

REPORT:

That they have been much gratified to find that the encouragement given by the Society has had so beneficial an effect.

The Show of Working Cattle this year was certainly superior to any that have preceded it. Eleven yoke of Working Cattle were entered to contest for the premiums, and, if the advantages of competition and excitement needed illustration, it would receive additional force from this part of the exhibition.

The cattle were in general well made and well matched, of great power and docility, and their training superior to what has been before presented to the view of the Society. Still in backing, which is a most useful and necessary power in the ox-team, there is more attention needed in our farmers. Several owners of oxen went from the exhibition satisfied that their cattle were not so well trained in this particular as to deserve the premium. It is a source

of much gratification to the Committee that they can feel so strong an assurance, from the appearance of the young stock, exhibited this year, that the zeal and enterprise of our countrymen is likely, for succeeding years, to present a breed of cattle more deserving of encouragement and more promotive of the best interests of the country.

After an impartial examination of the working oxen, and such test of their power and training as could be had, the Committee awarded as follows:

To Darius Putnam, of Sutton, 1st premium.	
To Silas Dudley, of Sutton, 2d do	
To David Smith, Jr., of Waltham, the 3d premium.	
To John Atkins, of Natick, half the 4th do.	\$7 50
To Jonas L. Sibley, of Sutton, the other half	
4th do	\$7 50
To Jonathan Davis, of Oxford, the 5th do	\$10

The fourth premium was divided from the general circumstances of equality in the minds of the Committee. The 5th premium was richly merited by Mr. Davis, for his Steers only three years old, which discovered no want of power in the usual movements of a load and wagon weighing nearly fifty hundred.

The Committee on "Working Oxen" have a full conviction of the motives which govern the Trustees of the Agricultural Society, in the premiums which are offered for the several grades of Working Oxen.

The utility of the Ox-team, its adaptation to the nature and condition of our soil, and its cheapness of support, said to be less than half that of a Horse team, would induce a belief that it must be in use in New England altogether. There are however other and very important considerations. A judicious farmer may make his team every year of increased value by their growth and training; and in case of most of the accidents that can befall them, the carelessness of nearly full value. It is not so with the horse team. And when it is considered that, from the use and multiplication of this animal, one of the greatest staple articles of our country is enlarged, the motive becomes imperative, and the influence of the Society involves that of the State.

It may be said that these facts are known to our intelligent farmers; but it is a source of regret that a great increase of horses in double teams, has taken place, which must lessen the means of support to our increasing population and thus become a public evil.

But your Committee consider that the principal, if not the only objection to the Ox-team, its want of speed, may be mostly corrected in the training, and they are happy to see in the cattle exhibited this year much to encourage the expectation. The motives for the use of ox power are so persuasive and well founded, embracing so deeply both individual and public in-

* The second premium which was awarded to Silas Dudley, and would under other circumstances have been well deserved, could not consistently with the rules of the Society be paid, as the same cattle had received a premium of the Society at an exhibition in a preceding year. This fact was unknown at the time. This regulation is important in the view of the Trustees in producing a more extensive and beneficial competition. It has been provided for in their advertisement of premiums, and as they thought was fully understood by the public.

terests, that your Committee cannot but trust they will find a due estimation and support in the discernment, vigilance and patriotism of the farmers of New-England.

Per order of the Committee,
JOHN WELLS, *Chairman.*

REMARKS ON FENCES,

By W. NOLAND.

To the Editor of the American Farmer.

ALDIE, October 25th, 1821.

Dear Sir—The 20th number (volume 3d) of the American Farmer, contains some excellent remarks on the subject of Fences, in a letter from Mr. James Worth, to the Secretary of the Agricultural Society of Buck's County, Pennsylvania. Mr. Worth recommends the post and rail fence to the farmers, as the cheapest kind of enclosure; and contends that it is superior to all others. The post and rail fence, made of proper materials, is known to be an excellent and lasting enclosure. When I speak of proper materials, I mean cedar or locust posts, with chestnut or black walnut rails. Such no doubt, are the materials with which post and rail fences are made in Mr. Worth's neighbourhood. In our County (Loudon) we have no cedar, very little locust or black walnut and not much chestnut, so that the post and rail fences of our country are made of materials that do not last more than ten or twelve years. It not unfrequently happens, that this kind of fence with us, is made of green materials, with a part of the rails so small or crooked as to admit hogs. This in a country, where hogs are permitted to go at large, you may readily suppose, is the cause of no little vexation, and often leads to serious misunderstandings between neighbours. I have noticed Mr. Worth's letter with the view of calling your attention to three kinds of enclosures, which I shall endeavour to shew, are cheaper and more permanent, than the post and rail fence made of the best materials.

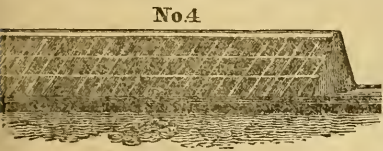
1st. THE STONE FENCE.

This fence is very common in this county, and is made from three to five feet in height. When the fence is three or three and an half feet in height, it has stakes with two rails on top: when from four to five feet in height, it has no rails on top. A man who understands making this kind of fence, will put up a rod for less money, than is the cost of an half rod of post and rail fence. Where the stone is convenient, say not more than an half mile from the spot, where it is proposed to place the fence, a rod of stone fence will cost less, than a rod of post and rail made of good materials. There are many parts of the United States, particularly in Connecticut, where the stone is so convenient, that a stone fence will cost less than an enclosure of any other materials.

2d. THE SOD-BANK FENCE.

This fence, on flat land, well taken with blue grass, English grass, Timothy or coarse grass of the prairies, is the cheapest of all enclosures. I make this assertion, partly from my own observation and partly from the observation of an

intelligent friend of great veracity. This friend is raised, five feet wide—the sod bank, four feet wide at bottom, allowing an offset on each side of six inches.



No. 1. The ground on which the sod bank is raised, five feet wide—the sod bank, four feet wide at bottom, allowing an offset on each side of six inches.

No. 2 and 3. The ditches eighteen inches wide on each side, from which the sod and dirt are taken to raise the bank.

No. 4. The front elevation of the bank, shewing the manner of placing the sod.

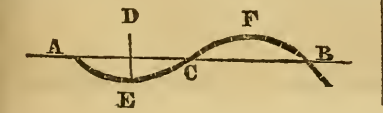
No. 5. The end view of the bank and ditches; the first three feet high and eighteen inches broad at top: the last eighteen inches deep.

No. 6. A common spade, with the corners cut off to be kept sharp to cut the sod.

No. 7. The shape of the sod; which ought to be taken out nearly the whole depth of the spade, in order to preserve the roots entire. The rhombus form of the sod acts as a brace to the bank, and is thought to be preferable to the sod in squares. A hedge of the Carolina rose, the common sweet briar or Eglantine, Althea, &c. would be ornamental and useful on the top of this bank. Should no hedge be planted on the top, it should be rounded and covered with sods or sown with blue grass seed. The spring of the year is the best time to make this kind of enclosure.

3d. THE SERPENTINE BRICK FENCE.

This enclosure is of late invention and known but to few. I have no doubt, however, of its becoming a favorite fence, when fair experiments have been made of its cost and strength.



A, C, B, is a serpentine brick wall four and an half feet in height, and four and an half inches, the width of a single brick only in thickness—A to B, 25 feet: A to C 12½ do: D to E 4½ do: C to F 6 feet nine inches. 380 bricks will make a rod of this fence ½ feet in height. As no stone is required for the foundation, it is only necessary to pare off the sod, and to lay the first row of bricks on the surface without mortar: the others will require good mortar in the proportion of one bushel of un-lacked lime, to four bushels of clean sand. The operation of laying the foundation is very simple. Stretch a line from A to B—let the segment A, E, C, be made of plank and applied to the line A, C—mark on the ground the circle on which the bricks are to be placed; and any active hand on the farm may proceed with the work. A brick layer will undertake to put up the wall for \$8 per thousand and find all the materials; but a farmer can afford to do it for \$6, which would be \$2.28 per rod; equal to \$1.14 for a pannel of post and rail fence. The first view of this wall must satisfy you, how much more difficult it would be to upset it, than a straight wall of the same thickness. This fence is the invention of Mr. Harris of Richmond, who enclosed from 8 to 10 acres of land, with a wall of this description about eight years ago. The winds and frost have made no impression on it to this day. Various experiments have been made, with the permission of its owner, to try its strength. Among others, a premium of several gallons of whiskey, was offered to 6 or 8 strong negro men, on condition they would push down the wall. They applied their shoulders to it, but their united efforts could not move a brick of it. Colonel Charles F. Mercer has commenced the enclosing of his grounds, adjoining this village, with a wall of this description. The undertaker was unable to proceed with the work for the want of materials, and left the work several months ago in an unfinished state. The wall at this time, is only four feet high, and, though in the neighbourhood of breachy horses and cows, no attempt has been made to pass the wall.

From the statement I have made, and the description, I have given of these several kinds of fences; I am decidedly of opinion, that in any part of the United States, where stone is convenient, the stone fence is the cheapest enclosure; that on prairies, flat meadow land, or any level land well taken with grass, that the soil-bank fence is the cheapest enclosure; particularly for division fences: that where these two last mentioned fences are not practicable, in a country scarce of timber, that the serpentine brick fence is the cheapest and best enclosure.

Should this communication throw some light on this important subject, I shall be highly gratified.

With sentiments of high respect,
I am your friend, &c.
WM. NOLAND.

TO PRESERVE RIVER BANKS.
K' g'ton, 23rd August, 1821.
MR. SKINNER, Sir, in your paper of the 20th of March, a request is made for informa-

tion how to keep the banks on the water courses from being washed. I owned a tract of land bordering on the Tennessee river, which commenced making inroads on the bank; there was still a few cane growing along it: I took care for two or three years to protect what was there, in order to increase it, which I did; and it is now growing as vigorously as ever, and I believe has entirely put a stop to the river washing the banks any further. Whether the cane would grow much along the tide-water or not, I do not know.

SAMUEL MARTIN.
—
FOR THE AMERICAN FARMER.
—
"A rat! a rat! Dead for a ducat."
SHAKESPEARE.

To Mr. REUBEN ROUGHHEAD.
Dear Sir,

Your piece in answer to me, in the American Farmer of the 2d inst. came safe to hand, and I regret to see that your first essay to Kill Rats on the principles laid down by me, met with no better success; but "*nil desperandi*," as Mr. Pedagogue says, which is as much as to say, "*try it again*;" try it *again* and *again* until you succeed,—don't give up, because one trial failed—recollect the spider which taught Bruce a lesson of perseverance, and led to the victory of Bannock Burn. Eleven times it had essayed to ascend the slender thread, and eleven times it had failed—the twelfth it succeeded. Eleven times had Bruce fought and been defeated; but "*I will like the spider*" said he "*try again*"—he fought and was victorious.

Now, Sir, there is one very important thing I forgot to mention. The material that these caps are made of, whether parchment or paper, must contain some *Pole-mick* writings, it is indispensable; at least it was so in France—that which my uncle saw used there, was obtained from a Convent of *Capuchin* friars, and it was from that circumstance, I am induced to believe that the mode of catching obtained the name, "*A-le-capuchin*" and not from *Cap-push-in*, as my uncle thought. More depends on the writing, than on the crumb of cheese at the bottom of the cap, or the tar or bird line, or any thing else about it, and it is all important that it should be of that kind called *Rat-icoination*, into which, whatever gets its head, whether rat or man, *Roughhead* or *Roundhead*, I defy him ever to extricate himself.

You must carefully avoid *Cat-egoricks* and *Dog-matics*, for to these, rats have an utter aversion: they may like *Hound's tongue* and *Smiler*, drive them away, but you may rely on it, they will never catch them.

If you use *paper*, none will suit but *fools-cap*. These are things that I ought to have mentioned before, but in the multiplicity of my cares, I really overlooked them—nowever, "*better late than never*;" and I sincerely hope your next effort may be more successful.

Allow me now, my dear Sir, to offer you a few hints. The original writings of the ancients, such as my uncle saw used, have become of too much value of late, in consequence of the Theological controversies which have been going

on among us, to appropriate to the catching of rats; but in proportion to their scarcity and value, various edifying tracts and essays, have become plenty and cheap—try them, my dear Sir; they will cost you nothing; you may find an abundance of them in the companion way of every Steam-boat, and in the bar-room of every tavern in the United States. If they fail, and I don't see why they should, try some of the longest speeches on the Missouri Question, or wait until next session, and try some of those we shall have about the affairs of East Florida, they being of a nature called Rhetorical, or as friend Pedagogue has it, *Rat-orical*, which I think is right, for although it is used now to catch gulls and *gadgones*, I have no doubt it was originally designed to catch rats, as the very term imports.

There are other things you might also try, to wit: some of the essays on currency with which our papers are filled; some of those on manufactures; one of the accounts of the *Holkham* (ham by the by is not a bad bait) Sheep shearing, and if none of these will answer try some of my essays, any thing somniferous will I think answer; at least as well as your uncles bushy head, the object of which was to catch them napping.—While I think of it, could not some of our Dandies be turned to good account, employed as Roughhead Rat traps? Some of their curls are admirably adapted to the holding of crumbs, and many of their heads have in them, I dare say, more things than rats and mice.

But try, my good sir, try, there is nothing like trying, and "practice makes perfect." "Try again."

My old aunt Deborah, desires me to say to you, (by the by, but this is a secret, my good aunt Deborah loves a drop now and then), she desires me to say, that *Ratafee*, (which is an excellent thing for the colic, to which she is very subject); but that *Ratafee* is not the right name for the cordial. She says it should be spelt as it is pronounced, *Rata-fee*—that the practice which formerly existed of giving a bottle of it as a fee for every rat that was taken, dead or alive, (and a good practice she thinks it was too) originated with the *Capuchins*, the inventors and lovers too of this cordial. They now it seems use *Muss-cat* for the same purpose, which is a corruption, she says, of *Puss-cat*.

She requests me to ask you, to ask your aunt Barger, if you are any way related to the *Loggerheads*, who are first cousins to the *Worm-scalls*, descended from the *Lucklands*, for if you are, she says you are a branch of the "*Simpleton family*," who boast of a relationship with us, but it is no such thing. She has, she says, traced our *Geology*, from William Long-acre, a greater man than Lord Roughhead, or any other Lord that ever wore a head, be his head Rough or smooth; that she is descended in a right line from old *Fee-simple*, a very respectable and worthy, old gentleman, who considered all of his connexions and friends on perfect equality—he was a very staunch Republican, and none of his family were ever known to complain of hard times, which is more than the Simpletons could ever boast of, large as the family is.

Your friend and obedient servant,

JEREMIAH SIMPLE.

P. S. You see now the advantage of signing the name in full: it is by this means we have become acquainted with one another.

J. S.

N. B. I almost always write a post script, as I generally think of something I ought to say after I have signed my name.

J. S.

FROM THE DEMOCRATIC PRESS

Mr. Binns—Is it known in the United States, that oil of turpentine is a specific for milk or purple fever, for dysentery, for diseases of the bowels in general? and that the physician who discovered the merits of the medicine is claiming compensation from the British Parliament, and it is thought will get fifty thousand dollars, as it is considered the next discovery after vaccination; that it is much more gentle in its operation when united with castor oil, than castor oil is by itself—that a very few hours is sufficient for recovery, even in the worst cases.

The writer has seen more than one thousand cases, some from the very point of notification, and never knew one to fail. A dose for adults, one table spoonful of oil of turpentine, one table spoonful castor oil; in general one dose is sufficient; if not, repeat the dose.

AN. IRISHMAN.

To our friends in the south, we beg leave to refer the following.

MR. SKINNER,

I am but a young Cotton Planter, with little knowledge of the business; and am desirous of benefitting by the opinions and experience of older planters; I should be obliged if some of your correspondents would furnish the name of any work, if any has been published, on the subject of the cultivation of Cotton; if no such work has been published, perhaps you might prevail upon some of your friends from the south, to furnish instruction through your valuable paper, going into detail, as to the quality of the land best adapted; time and manner of planting, how wide between the beds or ridges, if the furrow is made with hoe, heave or Scholter plough, how much seed to the acre, how covered, what time to commence working it, and whether with the hand, hoe, or plough, when, and how, to thin it, how often it should be ploughed and hoed, how many furrows in a row, at what stage must the plant be, when you discontinue working it, how many hands and hoes, will it require to 100 acres, tending no other Crop, is it best to plant it in ridges or in hills? and how far apart, is a dry or wet season deemed best, why the one preferred? in short, any information on the subject, would be acceptable, and thankfully received, by

AGRICOLA Junr.

Craven County, North Carolina.

MUNIFICENT SUBSCRIPTION.

General Stephen Van Rensselaer has subscribed five hundred dollars annually, for three years to come, to the Albany county Agricultural

Society. He has contributed the same amount for the last three years, besides what he has done indirectly, for the promotion of agriculture and manufactures. It will be recollected, that the geological survey of this county, was made under his auspices and at his expense. Nor has the munificence of General Van Rensselaer been confined to his own county. We understand he contributes four hundred dollars per annum to the Rensselaer county society; and his liberality and activity in the cause of agriculture has been instrumental in diffusing a spirit of improvement throughout the state. When the annual charities of this gentleman are told—when his munificent patronage of every institution, which is calculated to benefit and adorn society, is taken into consideration, we trust it will readily be acknowledged by all, that wealth in such hands is a blessing, not only to the possessor but to the whole community.

N. Y. Journal.

Poughkeepsie, August 8.

GREAT DAYS WORK.

Miss Ann Yates of the town of Fishkill spun and reeled one hundred and thirty knots of woollen yarn, in one day from sun to sun.

CURE FOR BURNS AND SCALDS.

Apply a plaster compounded of Burgundy pitch, bees-wax, and a little oil; it will afford almost immediate relief from pain. Let it remain on some days and the cure will be effected. Allow one fourth wax, add sweet oil, lard, or fresh butter to it, to reduce it to a consistency not so soft as to melt with the warmth of the flesh, nor so hard as to irritate.

EDWARD J. COALE,

BOOKSELLER—BALTIMORE.

HAS FOR SALE,

The Agricultural Almanack,

FOR THE YEAR 1822.

Patronized by the Philadelphia Society for promoting Agriculture.

Besides all the necessary calculations and tables in the common Almanack, it contains a number of useful articles relating to agriculture and valuable recipes for domestic uses. It is printed on fine paper and ornamented with a number of neat wood cuts, and interlarded with fine writing paper for memoranda. All for twelve and an half cents.

THE FARMER.

BALTIMORE, FRIDAY, NOVEMBER 9, 1821.

Flour from the wagons selling this week at \$6 62½
—Whiskey from do 33 to 34 cents—GRAIN—actual sales—White Wheat, \$1 60—red, \$1 40 and \$1 50—Corn, 63 and 70—Rye, 66—Barley, 60 and 65—Oats, 30 and 33

A few hlds. Kentucky Tobacco, sold the present week at \$5 50—No sales Virginia.

PUBLISHED BY JOHN S. SKINNER.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua si bona norint
"Agricolae." VINO.

VOL. III. BALTIMORE, FRIDAY, NOVEMBER 16, 1824. NUM. 34.

AGRICULTURE.

From the London Farmer's Journal.

HOLKHAM GRAND ANNUAL SHEEP-SHEARING MEETING, &c.

(Concluded from page 259.)

Mr. Coke then gave "The Earl of Albemarle," which was received and drank with enthusiastic plaudits.

When his Lordship rose to return thanks, the applause was repeated and continued some time. His Lordship began by saying, that the manner in which his health was received so overpowered him, that he knew not in what terms to reply properly, or to return adequate thanks to the gentlemen present for such testimonies of regard; he therefore thanked them simply, but upon his honour and soul, sincerely. His Lordship then (dropping into his familiar manner) expressed himself happy that his dear friend, Mr. Coke, had refrained upon that occasion from making any attack upon him, because it relieved him from many a bad joke to defend himself. He could not help, however, relating a circumstance which happened a little time back. Riding over Mr. Coke's park farm, he found it in so high a state of cultivation, and so perfectly clean from weeds, that he could safely say he did not see two docks the whole way; he said not two docks, and he spoke carefully and advisedly, for there was one [laughter.] and that a fine, tall, strong plant as ever was seen. His first emotion on a sight so unusual, was to alight from his horse, and pull it up; but on recollection, it stood in the middle of a piece of oats, which he believed were foreign oats, and the dock might therefore be a foreign dock, and preserved as a curiosity. [Laughter.]—His Lordship proceeded to regret that he did not see any Talavera wheat sown in autumn. It appeared to be a question with some, whether this were a winter or a spring wheat; for his part, he had sowed it at all times, and it had stood the winter as well or better than the old red; and it being a very fine showy sort in the straw, and generally forward, he wondered that his honourable friend should not have a piece of it to shew to his friends at the meeting [Laughter.] He would not undertake to decide whether it were a winter or a spring wheat, but he could not but deprecate the great breadth of it that was now spring sown, because it might throw the land out of condition, by sowing twice wheat in four years, and probably might soon injure both crops in produce. He considered it an excellent sort to fill up in spring crops that were deficient in places, but by no means to be substituted for a barley crop. His Lordship then proceeded to notice the upshot of the Agricultural Petitions, the Report of the Committee, and the discussions which had naturally risen thereupon. He repeated, first, that Mr. Coke had always been anxious to avoid political topics at that meeting; that he [Mr. Coke] had reprised these topics, and had frequently checked those speakers who, he thought, were in danger of transgressing the general rule; but he [Lord Albemarle] was prepared to insist that this rule had not now been departed from. As to the present question, and in the present condition of the agricultural interests, it was impossible for farmers to meet, and not enter upon the subject of that Report by which their sufferings were confirmed and all redress postponed to some future day. As these discussions could not but have relation to the measures of government both

in the origin and progress of the evils they felt, so they also must look to legislative measures as a source of relief, and the neglect of them as a dereliction of duty. In so far were these discussions political; because, in so far, politics could not be separated from the cause of the distress and its remedy. His Lordship then spoke of the Agricultural Report and the Horse Duty, which he supposed were two boons granted to the farmers; he said two, because one was a boon as much as the other; but the term *boon* he threw from him with contempt. His Lordship here spoke with extraordinary animation and force, and continued by adverting to the exposure of the aforesaid Report, by Lord Erskine and others on Monday. The Report was wholly a delusion, and he admired the able manner in which it had been treated as such. It had been said that the Report had been drawn up with great ability. "I care not for the ability said his Lordship, neither do I know which is the worse character—a downright impudent rogue, or a crafty and ingenious sophister, who will at once destroy your fortunes and confound your understandings." But he trusted the yeomanry would act with energy, and save the country and themselves from the ruin. As to that other boon, the Agricultural Horse Tax, he would look round and ask how much it would relieve the farmers? What proportion the *boon* (the mighty relief and kind blessing bestowed) bore to the depression of the times, and the losses sustained? Was it 8 £. a year, was it 10 £. a year to each individual? (*Cries of no, no!*) Then what relief was it? Would it raise the price of produce? Certainly not. Would it increase consumption, or the circulation of money? Not a whit. Then what did it amount to? "Truly (said his Lordship) it amounts to this: it is the first triumph over that system which weighs us down; and I rejoice that even that portion is wrung from them of the enormous sums which have been so fatally applied to enslave the country;—sums grievously raised and wantonly expended;—sums not necessary to the nation's safety, but to carry on and feed corruption." His Lordship then complimented Mr. Hume on his exertions, and concluded with repeating his thanks to the company, wishing they might all meet there again in health and greater prosperity. (*Long continued applause.*)

Mr. Coke next gave the health of "Mr. Hume," whose name was received with loud plaudits. Mr. Coke observed, that it was necessary for him to be very short, as the day was far advanced, and some urgent business remained to be done. He could only say, that the country was very much indebted to Mr. Hume for laying before Parliament such a statement as had forced the ministry into an acknowledgment of their errors, and would pave the way, he hoped, to the reform that was wanted. "Mr. Hume with three times three" which was drank with loud applause.

Mr. Hume in returning thanks, begged to borrow a leaf out of Sir Francis's book, as he must suppose that Mr. Coke's reason for honouring him a second time, was to make him better known to the yeomanry of Norfolk. He spoke of his humble endeavours in Parliament, and considered it barely as his duty to do all he was able to serve the true interests of his country. He was conscious that no measure but the reduction of taxation could ever make an impression on that system which was cemented by the public treasure, and was founded on the exercise of a rapacity which was equally blind, unsparring, and inhuman; the conduct thus pursued was at once unfeeling and ruinous, and the means thus amassed were diverted from useful purposes, to purposes the most degrading. He then spoke of the distress, and the extent of it, and declared, that whatever rubs he had met with in

the pursuit of his duty, would but stimulate him to further, and he hoped, more successful exertions, towards the reduction of taxation. He observed, that he was not qualified to speak of agriculture, but that he had his lot been cast in the country, he could easily conceive how interesting were those pursuits, which at once enriched the kingdom and fed the inhabitants, and which attached the pursuers so dearly to the soil; that they tended to improve the mind and elevate the human character was evident—for in the middle class we always found both moral and political virtues most active and eminent: it was to that class of people—the yeomanry—he looked to relieve us from all our difficulties. No man, he said, who had thought and feeling, could be indifferent to the public distresses—no one who had not a heart of lead could be insensible to the cries for relief. But in all that had been said, he desired to distinguish between the government and the ministry; he was sure that every man who heard him was a firm supporter of his King and the Constitution; the Ministry were alone responsible for the evils they had brought on us;—to that source the country must look for a change of councils, or continue to be trampled on, and ground into the dust. The whole course of their proceedings had only been to aggrandize themselves, and to sink the people into a state of helplessness, and leave them neither power nor voice in the state. He doubted not but the people of England would look to that conduct, and he did hope, before another twelve months were at an end, that we should see evidences of their discrimination between words and facts, and that they would no longer be imposed upon by palliations and pretences, as insincere as they were untrue. Mr. Hume proceeded at great length to view this case as it related to individuals and the kingdom, and concluded, that real relief could only be had by a change in the Commons House of Parliament. He then adverted to the Report of the Committee, and went over the whole ground of the distress, its cause and remedy; observing, that the saving that might be made without detriment to the public service, would not only be so much the less to pay, but it would be so much the more left in the hands of those whose business required it, and was shrinking to run for want of capital. He concluded a long and able speech by returning thanks to the company for their attention. (*Great applause.*)

His royal highness the Duke of Sussex then rose, amidst the plaudits of the company. "No one (said his royal highness) has listened with more attention to all the subjects which have been discussed than myself, and without pronouncing any opinion thereon, I must confess that some of them give rise to emotions somewhat painful; there appears to be before us an arduous task; but let us turn from painful subjects to one of brighter hue, and of more delightful and inviting aspect. Every individual must have been struck with the most happy impressions on visiting the village of Holkham; to see the propriety, decency, and felicity there portrayed, is a relief to the mind among the several sufferings of mankind. In this picture, we cannot fail to notice the importance of useful employment; it is that most imperious and indispensable adjunct to all public good and private happiness, which is so sedulously applied and so operative at Holkham; to this end has Mr. Coke laboured, and his labours are not in vain. Year after year, what must be his pride and satisfaction, in seeing so many enjoy the benefits which his great mind and christian conduct have made happy. This is to deserve that great reward which is promised to the faithful steward on earth—where it is said "Well done thou good and faithful servant." (*Applauses.*) Blessed is the man who can do such a work, and blessed are the people

who receive his bounties. As long as this mansion shall last, as long as these blooming fields retain their verdure, so long shall his fame continue; nay, till time shall be no more. (*Great Applause.*) I do not wonder at the expression of a feeling so unanimous—nor need I call on you to testify to the worth of one so well known—so long known—and so richly known by his good deeds. I do but feebly preface his health (for which I have risen) by declaring that as a member of the Legislature—as a Magistrate—and as a man—you will find in him the upright patriot, the accomplished gentleman, and the true Christian."

"Mr. Coke with three times three. His Royal Highness encouraged the applause which followed the toast, and it was continued with extraordinary perseverance and vociferation."

Mr. Coke returned thanks with much sensibility, and gave the health of "Lord Nugent" which was drank with great applause.

Lord Nugent returned thanks in a short but forcible and elegant speech. He observed, that he had to complain of Mr. Coke for calling on him after the company had heard much more able speakers. He would trespass but a very short time on their attention. You have heard (said his Lordship) Lord Albemarle, the master of your hearts; Mr. Hume, a faithful watchman; and Sir Francis Burdett, a martyr in your cause; and it is one of the proudest feelings of my heart, not to follow, but to be associated with them in company." His Lordship concluded a brilliant address by associating, in the most happy terms, the duties of the natural aristocracy and the cultivators, and in an eloquent appeal to posterity, whose verdict was more to be feared than the dungeon or the scaffold.

Lord Albemarle, in a handsome speech, proposed "The Ladies of the House of Holkham," which was drank with rapturous applause. In return, Mr. Coke gave "The Ladies of the County of Norfolk."

Mr. Coke then proceeded to distribute the premiums—beginning with a piece of plate, a very hand some vase, to the Right Hon. Sir John Sinclair,—on which he, (Mr. Coke,) read the following inscription indicative of the occasion:

"Holkham Sheep-Shearing—from Tho. Wm. Coke, Esq., to Sir John Sinclair, Bart. in testimony of the donor's approbation of the third edition of the *Code of Agriculture*; and of the author's indefatigable zeal and successful exertions in promoting improvements in the first, most honourable, and most useful of arts."

On receiving the cup, Sir John rose, and stated that, in returning thanks, he could not find adequate words to express his feelings on so unexpected a circumstance. "To receive from you Sir, (said Sir John) a public testimony of your regard; to receive it in the presence of an illustrious Prince, who has honoured the meeting with his attendance, to receive it in so great a concourse of distinguished agriculturists and eminent practical farmers, and to receive it as a testimony of your approbation of a work in which I have endeavoured to explain the various branches of agriculture, and to receive it as a lasting memorial of your esteem, an evidence which I can exhibit to my friends in Scotland, and bequeath to my posterity,—I shall ever consider as one of the most gratifying circumstances of a long and eventful life. We have in our family a cup, which had belonged to the celebrated Mary Queen of Scots, which she had given to her Secretary, and which by marriage, came into our possession; that ancient relic is highly prized,—but be assured, Sir, we shall ever consider this goblet, with which you have now honoured me, as still more valuable. This proof of your friendship, Sir, will contribute to the progressive value of an estate, which I wish to be highly improved: for what son or grandson of mine (to the most remote descendant) can view this goblet, without remembering in what country it was presented?—without remembering by whom it was presented?—and without resolving to emulate the exertions of a Coke, to rival, if it be possible, in the most northern county in Scotland (where our property is situated,) the *Hubbainery of Norfolk*."

Having read the several awards of the Judges, and

delivered the premiums—as under, Mr. Coke gave his annual lecture on several objects of improvement with which his auditory are so highly delighted. The length of the speeches, and the unusual interest of this meeting, necessarily pressed this important part into a smaller compass than formerly, and prevented Mr. Coke from dwelling so particularly on the several points as had been his custom. He stated, that it had been the original object of this meeting to diffuse improvement in agriculture, to see facts, to compare experiments, and to descend on the living objects before them; furthermore to add the experience of each year, from time, from reflection, and from communication. He had often told them, and he told them true, what a waste that was when he came to it the greater part of those who heard him knew what sort of stock, what sort of cultivation, what sort of produce, and what number of inhabitants it contained. Certainly it was now in a very different condition, which he would not contrast in particulars, but merely refer to the objects he had held in view, which would equally contribute to like improvement elsewhere. In place of the old unprofitable Norfolk Sheep, he had, after some trials of other sorts, introduced the *Downs*; flocks of them had become pretty extensive, but he was sorry to say they were very much crossed in some hands, and spoiled; he should be happy to see the breed renewed from the pure and improved flocks in Sussex, (referring as we understood him, to Mr. Piddington, who is in the habit of purchasing from the best breeders.) A Down flock on a farm of any given size, would pay more money than the Norfolk's by the whole rent; and for this fact, he appealed to Mr. Blyth, of Burnham; who confirmed it. The next object was the *Devon Cattle*; most admirable cattle they were, for the yoke, the dairy, and the pasture, and though difference of opinion must necessarily exist, yet on light land, such as Norfolk, they were allowed to excel. On the importance of irrigation, Mr. Coke dwelt some time, doing justice to several individuals whose names have been often mentioned on like occasions. *Underdrainage* was the next topic, by which much benefit had been obtained both on pasture and tillage land. Mr. Coke here mentioned various names of persons who had extensively improved their lands in this way. He next descended on *improved implements*, and especially for the row-culture. Next a recent improvement, called sowing on a *stale Furrow* came under review. We have already noticed this in the ride of Tuesday. Mr. Coke next treated shortly on *incubation*, enforcing his observations, by the facts that had been witnessed. *Manure* formed the next topic, in which he took notice of the great importance of *pies*, as recommended by Mr. Blaikie in his Essays. Such was the value of this method of preparing manure, that a crop of turnips might be rendered a matter of certainty under the row-culture, and he had never failed in any one instance. Two other manures he took notice of, namely, *bones* and *gypsum*, the former was highly important, and had contributed very much to the agriculture of the country. The latter he found most valuable in Holkham Park, and he wished others to give it a fair trial. Mr. Coke then proceeded to comment on *rotations*—on *mangel wurzel*—on *Valerian wheat*—on the management of *hedges*—on *marl*—and on the *minute of management*. Under this latter head are included the whole economy of proportioning labourers to their work, and horses to the extent of tillage; together with the mode of setting them on work, and every particular in the farm-yard, and the field, as to manure, fences, harness, cribs, implements, repairs—keeping all as much as possible from perishing by the weather, and from destruction by carelessness and neglect. The evening being far spent, Mr. Coke begged to enliven the company after a long dissertation, by giving once more the health of the Duke of Sussex. An instantaneous burst of applause followed.

His Royal Highness arose amidst the unanimous and heartfelt cheers of the company, and addressed them to the following effect:—"We are now come to the close of three happy days, upon which many here, may reflect with advantage all their lives, and upon which all may look back with delight and satisfaction,

in considering what may be done by talents, virtue, and perseverance, such as here have been exercised. We have witnessed happiness here, which is the result of wisdom and charity. That the whole neighbourhood, or that the whole kingdom could therefore be exempted from the distress which is now complained of, I do not infer: I hope the remedy for this is in our own hands, and that it will be unanimously and adequately applied. No effort in my power shall in any way be wanting; (*Great Applause.*) and as long as I live I shall most of all readily adhere to those principles which placed my family on the throne. (*Long acclamation.*) It is a great satisfaction and pleasure to me to encourage, as far as lies in my power, the interests of agriculture, and to do honour to those who follow the most ancient and most useful pursuit. In China it is a custom, in order to dignify and enhance the labour of the field, for the Sovereign to put his hand to the plough on a stated day, with great ceremony, and surrounded by all the chief Nobles of the empire. This, without doubt, is intended to signify that agriculture is, more than any other employment, a benefit to the community."—His Royal Highness then expressed, with much feeling and emphasis, his impressions relative to the distresses of agriculture, and the necessity of retrieving its prosperity. From which he took a view of international politics and deprecated the mean jealousies which sowed discord among States. After which he sketched the principles which in his opinion, ought to be applied to the Governments of a free people, and declared that it was degrading in comparison to be a Sovereign of Slaves. We are sorry that the shades of evening here interposed between the Royal Speaker and our powers of note-taking, and we can only add, that the peroration was such as drew peals of plaudits from the company. Sir John Sinclair then rose, and in a handsome speech proposed the health of "Mr. Blaikie" which was drank with great applause.

Mr. Coke returned thanks, and stated, as he has often done, the origin and progress of his connexion with so excellent and useful a person, whom he rather considered as a friend than a servant. The very great esteem and affection with which Mr. Coke spoke of the merits of Mr. Blaikie, formed indeed a suitable epilogue to the drama, in which so much to the comfort of the company and the credit of himself he plays so useful and conspicuous a part.

LIST OF PREMIUMS, &c.

CLASS I.—Southdown Sheep.

For the best Shearling Southdown Ram, a Piece of Plate, value Ten Guineas, to the Honourable General Fitzroy.

For the best Southdown Ram Hogget, a Piece of Plate, value Ten Guineas to Mr. Reeve of Crake.

For the best Southdown Weather, a Piece of Plate, value Ten Guineas, to Mr. Harvey, of Alburgh.

For the best Southdown Weather Hogget, a Piece of Plate, value Ten Guineas, to Mr. Hill of Waterland.

Judges—Messrs. Creasey and Brook, and Mr. Francis, (Salesman).

The following gentlemen also exhibited Sheep, either for the premiums, or as extra stock; viz Mr. Reeve, jun. Mr. Beck (Rising), Mr. Beck, (Milham), Mr. Beck, (Conham), Mr. Kendal, (Wessexham), Mr. Bligh, Mr. Paul, Mr. Butcher, Mr. F. Moore, Mr. P. Oakes, Mr. Wright, (Stanhue), and Mr. Shearings, (Paxfield).

CLASS II.—Devonshire Cattle.

For the best Devon Bull, a Piece of Plate, value Ten Guineas, to Mr. Overman, of Burnham.

For the second best Devon Bull, a Piece of Plate, value Six Guineas, to Mr. Blythe of Burnham.

For the best pair of Devon Heifers, a Piece of Plate, value Ten Guineas, to Mr. Thomas Moore, of Warham.

For the best and fattest Devon Ox, under three years old, a Piece of Plate, value Ten Guineas, to Mr. Bloomfield of Warham.

Judges—Lord Althorpe, Mr. T. Leeds and Mr. Collins (Salesman).

Various kinds, of Devon Cattle were also exhibited

by Mr. Watts, (Binty), Mr. F. Oakes, Mr. Beck (Lexham), Mr. Oakes (Bunham), Mr. Garratt, (Bilington), Mr. Shearing and Mr. Denny.

CLASS III.—Horses.

For the best thorough-bred Stallion Horse, a Piece of Plate, value Ten Guineas, to Mr. Whinchop of Ly on.

For the best Stallion Horse of the Road or Nag kind, a Piece of Plate, value Ten Guineas, to Mr. Wright of Roughton.

For the best Stallion Horse of the Cart kind, a Piece of Plate, value Ten Guineas, to Mr. Hasek, of Denver.

Judges—The Hon. Geo. Walpole, and Messrs. Beeston and Browne.

Besides the three to which premiums were adjudged, there were thirteen others exhibited, by Messrs Sibel, Howlet, Barnard, Pritty, Warnes, Bulling, Eve, Walker, Brown, Taylor, West, Watson, and T. W. Coke, Esq.

CLASS IV.—Pigs.

For the best Boar Pig of any breed, a Piece of Plate, value Six Guineas, to Mr. Harvey, of Alburgh.

For the second best Boar Pig, a Piece of Plate, value Four Guineas, to Mr. Blyth, of Burham.

Judges—Mr. H. Abbott, Mr. Reeve, and Mr. Wm. Blyth.

The following gentlemen also exhibited Pigs of different sorts and ages; (viz.) Messrs. Oakes, (Barnham), Oakes, (South Creak), Beck, of Mitham, Beck, of Lexham, Turner, of Castle-acre, and T. W. Coke, Esq.

CLASS V.—Comparative merits of Drill & Dibble Husbandry.

For the most correct and satisfactory statement of the comparative merits of the Drill and Dibble husbandry, a piece of plate, value ten guineas, to Mr. S. Taylor, of Ditchingham.

Judges—Mr. Blaikie & Mr. Tattersall.

CLASS VI.—Implements.

No implement exhibited possessed merit sufficient to entitle it to a premium.

CLASS VII.—Shepherds

First premium of five guineas—To George Room, Shepherd to Mr. John Barber, of Doughton, who had from 502 ewes put to the ram 567 lambs, 18 barren ewes, and 6 ewes dead: 22½ lambs to the score.

Second of four guineas—To William Boen, Shepherd to Mr. Thomas Scppings, of South Creak, who had from 420 ewes put to the ram 529 lambs, being 27 4/7 lambs to the score; 3 ewes barren, and 6 dead.

Third of three guineas—To Thomas Symonds, Shepherd to Mr. T. M. Nelson, of Holme, who had from 300 ewes put to the ram 436 lambs, being 23 2/3 lambs to the score; 2 ewes barren, and 3 dead.

Fourth of two guineas—To Richard Pentney, Shepherd to Mr. J. Chadwick, of Thornham, who had from 203 ewes put to the ram 337 lambs, being 28½ lambs to the score; 1 barren ewe, and 8 ewes dead.

Judges—Mr. Blaikie and Mr. S. Taylor.

CLASS VIII.—Ploughmen.

A piece of plate, value ten guineas, to Mr. Ram, Gressenhall.

The sum of five guineas to Thomas Hall, servant to T. W. Coke, Esq.

The sum of four guineas to Wm. Smith, servant to Mr. Blyth, of Burham.

The sum of three guineas to James Rix, servant to Thomas Wm. Coke, Esq.

The sum of two guineas to Edward Beales, servant to Mr. Garwood, of Billingham.

Among the implements we omitted to notice a cart sent by Mr. Clark, of Alconbury, Hunts, to exemplify the merits of cylindrical wheels. It happened unfortunately, that this did not arrive for inspection until the evening of the second day, which occasioned it to be very much overlooked; it was however, without doubt, a very complete and useful cart, at once light, strong, and roomy. The spokes were of wrought iron; the naves of cast iron. We have not room in this place to prolong the description.

BRIGHTON CATTLE SHOW—1821.

Proceedings of the Massachusetts Agricultural Society at the late Brighton Cattle Show

Continued from page 256.

The Committee on Agricultural Experiments, to whom was also committed the inspection of several articles of Manufacture,

REPORT.

That four several lots or parcels of *Cheese* more than one year old, and twelve lots of new *Cheese* were offered for the Society's premiums: of the former, that from the dairy of Mr. Job Ranger, was considered to be the richest, best made, and best flavoured *Cheese*, and is entitled to the premium of ten dollars;—that from the dairy of Mr. Elisha Matthews, the next best, and is entitled to the premium of five dollars. Of the new *Cheese*, that from the dairy of Mr. Daniel Hunter, was considered to be the best, and is entitled to the premium of ten dollars;—that from the dairy of Mr. Nathan Rice, the next best, and is entitled to the premium of five dollars: the whole of said *Cheese* was made in the town of *New-Braintree*, in the County of *Worcester*.

Several parcels of *Butter* were also exhibited, all of them very fine. The lot entered by Mr. Stephen Hastings, of Sterling in the County of *Worcester*, was considered to be the best made, and of good flavour, and is entitled to the premium of ten dollars;—that entered by Mr. Luke Bemis, of Watertown, the next best, and is entitled to the premium of five dollars.

A great variety of *Vegetables* was brought to the Society's Hall for exhibition. His Excellency Governor Brooks caused to be exhibited some white Globe Turnips, of a very superior quality, the produce of his farm in Medford. Some uncommonly fine *Ruta Baga*, and Carrots, were sent from the farm of Gorham Parsons, Esq.; and from the same farm, some sweet Potatoes, of a large size, and in no respect inferior to those of *Carolina*. From the farm of John Prince, Esq. some Mangel Wurtzel, and some Russian white Radishes, of a very large size.

This species of the radish is cultivated in *Russia* for the purpose of feeding stock.—Mr. Prince also sent to the Society's Hall, a specimen of Flax, of a good quality, produced and dressed on his farm in Roxbury.—From the farm of E. Hersy Derby, Esq. some Potatoes of the best possible size for the table, the growth of the present season from the shoots of the third and fourth planting of the same seed potatoes. Mr. Derby's account of four crops of potatoes raised by him the present season will accompany this report. From the farm of Gen. Hull, some large *Ruta Baga*. A particular account of the manner in which they were cultivated, will be communicated by Gen. H. to the Trustees, as soon as the crop shall have been taken from the ground.

Mr. C. C. Brown, of Watertown, exhibited some very large fine Ears of 10 and 12 rowed white Corn. From the farm of Mr. Elijah Sanderson, in Waltham, two Water Melons, one of them weighing 42 pounds and the other 47 pounds. Mr. Nathan Adams, of Medford, exhibited a large Beet, a species of the Mangel

Wurtzel, with some observations on its great utility as a food for Milch Cows.

Several specimens of Sole Leather and dressed Calves Skins, were offered for the Society's premiums:—of the former the parcel entered by Mr. Samuel Hobbs, of Weston, was considered to be the best, and is entitled to the premium of ten dollars. Mr. Hobbs also exhibited some Harness Leather, of an excellent quality. The parcel of Sole Leather entered by Messrs. Benjamin Myrick & Co. of Roxbury, was adjudged to be the next best, and is entitled to the premium of five dollars. The Calves Skins entered by Mr. Nymphas Pratt, of Shrewsbury, were thought by the Committee to be the best; those entered by Mr. Thomas Prosser, of Roxbury, the next best. Several Tanners and Curriers competent judges of the article, pronounced both parcels of Calves Skins to be dressed in a very superior manner; the former is entitled to the premium of ten dollars, and the latter to the premium of five dollars.

THOS. L. WINTHROP, Chairman:

October 11th, 1821.

The Committee on Agricultural Experiments will make an additional report early in December, before which time the evidence demanded by the Trustees, of the Crops of the competitors for premiums, cannot conveniently be furnished.

Account of four Crops of Potatoes raised in one season.

April 10, 1821. Planted half a bushel of late potatoes, part kidney and part round ones, cut into sets, in a hot bed.

May 7. Transplanted first set of vines, as I should cabbages, and replanted the sets.

May 21. Transplanted the second set of vines, and replanted the sets.

June 5. Transplanted the third set of vines, and replanted the sets, and hoed the first and second set of plants.

June 30. Transplanted the fourth set of vines.

July 1. Commenced digging full grown potatoes from first set of vines, since which my family (a large one) have been fully supplied, and I have lately commenced digging the fourth set of vines.

The potatoes exhibited were taken from the third and fourth sets of vines, and there are very few small ones.

E. HERSEY DERBY.

Salem, Oct. 1821.

Massachusetts Agricultural Society.

It may be useful to this Society, and gratifying to its friends, to give a summary view of its distribution of premiums at the late Show at Brighton. It will shew the wide extent of country through which its influence is felt; and although it certainly cannot pretend to a greater degree of zeal or intelligence than are exhibited by the local societies, yet its premiums not being limited by county lines, are more extensively distributed.

78 premiums were awarded to 70 different individuals, in 37 towns, and in the counties of Berkshire, Essex, Hampshire, and Suffolk.

Worcester,
Middlesex,
Norfolk,

Plymouth,
and
Bristol

The interesting report on agricultural products, for this year, is not included, because the crops are not all gathered, and the evidence could not, of course, be furnished. It is hoped and believed, that this will swell the list, and that we shall see *some*, if not *all*, of the four remaining counties of the State, in the statement of successful competitors. It is our wish and an earnest one, that every part of the State may feel an interest in, and participate the advantages of, this earliest society.

Per order.

J. LOWELL, Cor. Sec'y.

Boston, Oct. 23d, 1821.

Directions for the preservation of the Slips of the Sweet Potatoes, and for their cultivation.

The Slips are nothing more than the small potatoes or roots last thrown off by the plant. They are preferred to larger ones on the several grounds, of economy, of food and of room—of their being more easily preserved, and less likely to rot in the ground after they are planted. The writer of this, during fifteen years never succeeded in getting more than one large sweet potatoe to vegetate or grow in the open ground. The ignorance of the mode of culture has probably been the cause of their not having been raised here.

The slips should be put up for preservation without bruising them (or as the directions from New Jersey expressed it, they should be handled as carefully as eggs) in a dry state, in perfectly dry sand or earth, and kept in a warm place as free as possible from moisture.

Those who wish to be perfectly assured of their success, will raise a small hot bed, with or without glass, about the 10th of April, on the south side of a fence, wall or building—On this, they will lay the slips or roots so close as to touch each other, so that a bed of six feet square will be sufficient for a bushel of them. They should then be covered with about an inch of earth. If the cultivator has no hot bed frames, the bed at night may be covered with a mat or with straw.

In 10 or 14 days some of the shoots will appear above ground: when about one half or even a third so appear, they are all to be taken up to be planted. The lightest soils are best adapted to them. As their roots almost universally strike directly downwards, like those of the carrot, they are always planted on hills raised about nine inches, or about the height of a potatoe hill, after its last faithful hoeing. These hills should be four feet and a half apart in every direction.—The slips, two in each hill, one foot apart, are then put in either with the fingers, or a stick, or any instrument capable of making a sufficient hole, and the crown or top should be within an inch or half inch of the surface. When thus started or sprouted, it will be easy to distinguish the end which sends out roots, from that which puts forth shoots for the open air. The slips should be put in perpendicularly or nearly so, the root end downwards. They would grow without this precaution, but

would be delayed and injured in their growth. A little dung dug, or hoed in, will much aid their progress, unless the land be rich. They cannot bear moist or any rich grounds, or places, where the water stands, after showers. Their vines grow too luxuriantly in such situations, and their roots are softer and more watery. The late season was two wet to enable us to raise them in their highest perfection, but a majority of them were still very good.

After they are planted they require the same treatment as the squash or pumpkin, that is, simply weeding them. In the Jerseys, they raise the runners from the ground when they weed them, so as to prevent their taking root, which they do more readily than any plant, and which the Jersey farmers think injurious to the main roots. The subscriber permitted nature to take its course, but he should certainly make the trial another year of the New Jersey method.

The product for two successive years has been at the rate of 220 bushels to the acre, with no great care, nor indeed so much as that bestowed on common potatoes. They were planted this year early in June, and were killed on the 10th of October, which is at least 45 days less growth, than they would have in common years, or if the seed had arrived earlier. They will begin to be palatable and fit for table about the 15th September or the 1st of October as the season may have been hot or cold; but the general crop ought not to be dug till the vines are killed. They will endure seven or eight successive hard frosts after the common potatoe stalks have been killed. So many persons have applied for slips, that it was the advice of some of them, that these hints should be published. It is not pretended that the culture is of any agricultural importance—it is merely an horticultural experiment very pleasant to those who have a taste for such pursuits—and also gratifying to those who love the sweet potatoe. They certainly can be raised here of excellent quality full as often as we can raise good grapes, peaches, or even pears.

JOHN LOWELL.

P. S.—They should not be gathered in by the hoe, or even spade—they must be raised like the carrot by the dung fork.

Do Agricultural Societies bestow their premiums on proper objects?

From the Providence Journal.

The exertions that are now making in New-England, for improvement in agriculture and manufactures, are truly commendable; for whoever engages in a good cause, deserves credit, whatever may be his success: But it is very much to be doubted, whether the Societies, organized for this laudable purpose, use the best means to affect their object. If the object of the agricultural societies be what it seems to be, namely, the promotion of the general interest of manufacturers and farmers, it appears, that nothing ought to be encouraged, which it would not be for the interest of all to practice, who are engaged in the same business; but upon examination, we shall find, that those societies manage upon a far different plan. And to elucidate this subject, let several things oc-

noticed, not with reference to any particular society, but from a knowledge of several, in different states.

It is the common practice to promise a premium to him, who shall raise the likeliest calf—a farmer who can afford it, gives the milk of two or three of his best cows, and whatever else will promote the growth of the calf, and thereby obtains the reward, besides some credit, which is probably not a secondary object; but the fact is, the calf has cost three times as much as he is worth. Now what advantage has society or the farmer derived from this management? Is it a method of raising cattle, to be recommended? and, if not, why encourage it? A premium is offered in the fall for the largest spring pigs, and a wealthy farmer keeps several on milk and meal—(the case is not a supposed one) his pigs are found the largest, and he is declared the best hand for fattening hogs; but is it, in reality, that kind of economy which ought to be recommended to our farmers? By feeding an ox at the stall, for seven or eight years, and not working him, he may, doubtless, be made large, and will command a great price, but who that has had any experience in that mode of making beef, will not say, that the cost far overbalances the profit? It certainly is not good policy, for a farmer to turn one kind of produce into another, unless that last made, be of the most value: If the farmer, who makes an ox worth an hundred dollars, expends what would have brought him an hundred and fifty, he is not only a loser himself, but he is doing an injury to society. Upon the same principle, may it not be doubted, whether the lady who spends six months or a year in working a counterpane, which is not worth half the labour bestowed upon it, ought rather to be rewarded, than she, who in the same time, manufactures several hundred yards of cloth? or, is it, the object to reward those who make the finest things? If so, those will obtain the reward who have the most leisure and money.

Again: it is the general practice, in Agricultural Societies, to reward him, who shall raise the most grain on a given quantity of land; therefore, farmers are induced to expend their labour and manure on a small part of their land, and neglect the remainder. It is well known that many farmers often undertake to cultivate too much land, and in the end, by not doing enough, lose what they have done: so in the other extreme, by doing too much, the profit does not pay for the labour. The farmer will always think that the best management, which produces the greatest profit, in proportion to the labour bestowed; nor will he often want sagacity to discover it, or rewards for adopting it, when it shall appear; but we do not find, that the mode of cultivation, which is recommended, is practised, except in particular cases, where a premium is expected, or at least, the name of having raised a great crop. Would it not be better, in this case, if those who would encourage the industrious and economical, would require all those that are ambitious to excel in the art of husbandry, to till a certain proportion of their arable land yearly, fixing the quantity by a just rule of tillage, and estimate their manner of cultivating the land as a courage; this would encourage farmers to husband

their whole farms well, instead of a part, and every farmer might enter the list, whether his farm was as large as Job's or no larger than that of Cincinnatus. In some societies a reward is proposed to him, who shall produce the best cheese, or the best firkin of butter: now it would be a little singular, if you could not find a good cheese in a poor dairy, nor would it be strange, if a person should make a very good firkin of butter, who commonly makes very bad, or possibly none at all except on particular occasions. Why not in this case let the number of cows be known, and the dairies which they make, and give him the credit, who makes the largest and best dairy, from the smallest number of cows. This would encourage the making of dairies, not a single cheese. Much the same might be said with regard to the effect of the encouragement given manufacturers: they make a solitary effort once a year to make something of a superior quality, and probably succeed, but they do not act upon a plan, which they can recommend to others, for its utility; in fine, the evil seems to be, that encouragement is given to that kind of management which is not of public utility.

A FARMER.

Coffee—Gravel, &c. &c.

Philadelphia, October 29, 1821.

Sir—The observation on the use of an infusion of Coffee, as a remedy for the gravel, in Number 31 of the American Farmer, will no doubt attract the attention of all persons subject to that distressing complaint. A few additional remarks may be of service.

Of the salutary effects of coffee in dissolving gravel, I have no experience, nor did I ever hear of a trial having been made of it in this city for that complaint. It has however been used in Europe and other countries with apparent success. In the *Annecien Academi of Italier vol. 6. p. 177*, it is stated that a weak infusion of coffee, drank freely early in the morning, was highly useful in the cases of several persons at Stockholm in expelling gravel. Tavernier also says, that the Persians know nothing of the disease, and that their exemption is ascribed to their free use of coffee as an article of diet. Other travellers make the same remark as to the absence of the disease among the Turks who drink coffee immoderately: but it is clear, that climate in both cases operates powerfully in favour of the inhabitants; for it is notorious, that warm climates are much less subject to gravel or stone, than cold countries.

Dr Williams, it appears, was led to the use of coffee as a remedy for the disease in question, from the circumstances of his finding his gravel reduced to a fine powder, when immersed in a strong infusion of the berries. On this, I must remark that it is a very uncertain mode to ascertain the influence of a remedy intended to operate through the medium of the circulation, or in the stomach and bowels, from phenomena exhibited by an agent, *extra corpus*, or in plain English, in the open air, owing to the change produced by the digestive process upon most substances. A striking proof in point may be derived from the fact of the harmlessness of many of the most active worm medicines upon those troublesome insects when immersed in them:—and on the contrary of the powerful effect of others upon them, which are totally inert when taken internally. Many similar facts could also be quoted in reference to medicines known to be highly beneficial in gravel and stone. I forbear to enter further into theory; but I will nevertheless acknowledge, that numerous substances do act *propria forma*, in the human system, and thus produce healthy actions. Those who wish to see this principle defended more ably than in any other work are referred to the lecture of Professor Cooper, now of Columbia College, S. C., on the

"Connexion between Chemistry and Medicine"—Philadelphia, 1818—Ab. Small.

The causes of stone and gravel are numerous, the composition of them, different, and the remedies as diversified and opposite—Some kinds are greatly relieved by acids: while on the contrary, alkalies have long been famous for their effects in preventing and curing both. Magnesia has produced wonderful results. Every one subject to the complaint, ought to read Dr. Marcet's work "on Calculous Disorders."

AGRICOL. MEDICUS.

Culture of Flax, Agricultural Premiums, Tuscan Cattle, Felling of Timber and preservation of Bridges, &c. &c.

BELMONT, Oct 8th. 1821.

***** I have, with much interest, perceived the zeal evidenced every where, on the subject of the flax culture and preparation. I yesterday received a letter from a gentleman in New-York, who has raised sixty acres of excellent flax on reclaimed salt marsh; and has, in great progress, a machine for dressing it, on a very extensive scale; but I fear he is aiming at too much. Some highly beneficial results will flow from such endeavours; though failures in many attempts are to be expected. *****

I know not why agriculturists should be distinguished by being the almost sole proficients of premiums to stimulate improvements in the art in which they directly labour for themselves, 'tis true. But the fruits of their toils are enjoyed by all other branches of society; and in fact form the foundations of the prosperity of the whole. Probably they have the faculties attributed to *Anteus*, the fabled giant of antiquity. He was the son of *Neptune* and *Terra*; and derived his vigor and strength from touching his mother earth, whenever occasions required it. This ancient fabulous character is emblematical of the dependence on, and connexion with, each other, which agriculture and commerce should ever exhibit. Neptune and Terra should always be friends; though the time for producing giants has passed away.

I am pleased with your acquisition of Tuscan Cattle.* I have no idea that England mo-

* The "DUKE" AND "DUCHESS."

This remark has reference to a pair of the celebrated Tuscan Cattle—recently brought from Italy, by Commodore Bainbridge in the Columbus. Disregarding all private emolument, the commodore on his arrival, generously offered them to the Editor at their original cost, under the persuasion that, at his stock farm the breed would be more assuredly preserved, without intermixture; and thus that benefit, which was his sole object in procuring them, would be most certainly conferred on the Agriculture of his country. These cattle promise a desideratum to the agriculturists of the Southern States, to wit:—active and powerful oxen, capable of sustaining the greatest heat of their climate.—When these cattle were landed from the ship at Boston, after a voyage of forty-five days, they were driven at once into the country, under the pressure of one of the hottest days of the last summer. A good judge of, and extensive dealer in cattle saw them on their way and observed, that while the oxen of that country would have been lying down in the yoke—the Duke and Duchess ripped lightly along, without any appearance of distress. These cattle are of very peculiar form and movement—in colour a light grey, approaching to white—with black tails, ears, eyes and muzzle. The male when not altered, acquires, nearly a black colour in the neck and shoulders, but, if emasculated is not distinguished by colour from the female. The male progeny of this stock will be for sale, as they come—at Bova's.

Ed. Am. Farmer.

nopolizes the best breeds of cattle. From other countries, and in our own, I have seen finer horned cattle than I ever saw in England. The Flemish working cattle are superior; and no doubt, so are those of Tuscany. In both these countries working oxen are the chief reliance for farming purposes. In Tuscany, they use them almost exclusively. The horses in Flanders are most employed on roads. Flemish horses for the draft are remarkably good. I wish we could use oxen and mules more, and horses less. We should soon see the economy and benefit of the change.

I have not seen all the papers on the subject of timber, and building under sheds. But what I have seen accord with opinions I have long entertained. One of the labours of my life was that of founding, and assisting in the erection of the Schuylkill High-street Bridge. During the war of the revolution I made myself acquainted with the various objects my duty in the War Office obliged me to know. The quality of timber, and modes of using it, for forts, arsenals, gun carriages, &c. was necessary to the superintendence I had, over those employed in such works. For farming purposes I have also had much experience of timber. I always held winter felling the most proper. In February, before the sap reflows, I preferred; but any time in the winter did equally well. I never could agree with those who allege that barking live timber, and suffering it to stand over a season, would supersede the practice of winter felling. As to covering works of wood, I had an arduous task to convince my bridge coadjutors of the salutary uses of this practice. At length I succeeded, and introduced the first cover of a bridge exhibited in this country; and the second in the world. In the Statistical Account of the Bridge, appended to the first volume of the Memoirs of the Philadelphia Society for promoting Agriculture, you will see in page 46, some of my efforts on the subject of the Bridge Cover; and my ideas of its necessity and usefulness. I had then a multitude of facts and remarks on timber, which are somewhere among my old lumber. Should you take the trouble to read this account of the Bridge, you will see many useful facts and observations on the timber, and all other materials of workmanship, employed in heavy structures. I never believed much in the influences of the moon, as to felling timber, or planting or sowing our products. Extravagant vagaries are sported in this subject; and many effects are attributed to the Moon—good and bad—which other causes occasion. The havoc and waste, wantonly practised in relation to all kinds of timber, have some symptoms, however, of Lunacy. Now we have Florida to supply us with Live Oak, we have a new opportunity of remedying our past extravagance and waste of that kind of material for our Ships. Congress should make every provision for securing the Live Oak, which abounds in that Region.

This subject calls to my recollection so many anxious investigations, that I must close it; lest I should exceed the bounds of a hasty letter. I must add, however, on the topic of covers for wooden structures, of whatever form, Ships, or Bridges, or any others;—that our

Schuylkill Bridge was opened for passage on the first of January, 1805, and after a lapse of nearly 16 years, there is not a stick of the timber in the least decayed: on the contrary, the whole having escaped the dry rot, its durability is ensured. To ease the western abutment, built on piles, we made a temporary access, of the best timber, about 30 feet in the passage way, and left it uncovered. This rotted in less than 7 years; and we have now taken it away, and filled the site of it with earth; the masonry being now so fixed and settled, that there is no further occasion of any apprehension.

I think the differences of opinion about felling of timber, arise from the too common and illogical custom of drawing general conclusions from particular facts: trees, like plants have different constitutions, and different times of ripening or perfecting their maturity; and of course various stages of progress in their existence. *Hickory* will it is alleged be the most durable when felled in the flow of the sap—and the coachmakers say that *Ash* is best when cut in the Autumn. I will not vouch for these assertions; for I have ever preferred winter felling, to all other periods of cutting down timber of every species.

With sincere esteem,

Yours very truly,

RICHARD PETERS.

With respect to flax the technical and proper term is *retting*, or more properly *wetting*, in place of *rotting*. No putrefaction should occur. *Retting* is a solution of the viscous, gummy, or glutinous matter, which binds together the *hull* or cortical part, and the woody or pithy substance. *Dew* often produces *rotting*; but *steeping* operates as a solvent merely; and thus has the preference.

J. S. SKINNER, Esq.

Having perused the "Statistical account of the Schuylkill permanent Bridge," we cannot forbear to subjoin the following paper from Judge Peters. It shows conclusively, the use and necessity of covering, to ensure the durability of such structures.

Editor.

"After many fruitless attempts by others, to raise funds, and institute plans for erecting a Permanent Bridge over the Schuylkill, I was fortunate enough, through many difficulties and much opposition, to obtain (owing to its own merit, urging on and assisting my perseverance) the law under which the erection of the present structure has been effectuated. I hold it therefore a duty peculiarly incumbent on me, who originated, and have faithfully laboured in the execution of an enterprise, in which so many have embarked their property, to make an effort for the completion and safety of a work, on which the value of their advances so materially depends. Under these impressions, I bring before you the subject of covering the Bridge; and herewith present several drafts of covers, adapted to the frame. From the time of the first idea of a wooden superstructure, I have never wavered in my opinion of the indispensable necessity of the cover. I was surprised (a long time after I had conceived it to be a general sentiment) to find myself in a minority on this subject, though I was not entirely alone. I have reason now to hope that the sentiments of several of the

Directors and great numbers of the Stockholders have materially changed: or returned to original impressions. I have been accustomed to this situation in many of the most important parts of the work, and subject's connected with it. I have now, as heretofore waited for the candour of the Board and Stockholders to produce convictions; and have generally been gratified by the event. In some former communications it will appear, that I have never approved of painting or coating with composition or resinous substances, the surface of unseasoned or massive timber. I gave my reasons for this opinion, which comport with long experience and observation, however singular it may appear. I endeavoured to prevail on the Board, or the building committee, to cause the straight timber to be bared through the heart; that the air might pass, and the sap there evaporate; which when confined, feculates, and soon or later, rots all large timber.—Since this has not been done, I am not displeased that the timber is splitting; and, through crevices, giving opportunities of escape to this intestine and deadly foe. Casing of such timber with lead, tin, copper, or wood in immediate contact, and thereby closing the pores, and preventing the emission of the feculating sap, I have endeavoured to shew to have been found, in most instances, worse than fruitless, because mischievous. Nothing has been proved so effectual, as covering the whole of a frame, constructed of large timber, with a roof; and, at the sides, excluding rain, without preventing an uninterrupted circulation of air. The cover I propose is calculated to be sufficiently strong for its own support; but I tempts me to say, it is violent, assail it, the covering may blow away before the frame can be injured. The light sails may, by sudden squalls, be detached and yet the ship remain staunch.—These causes of apprehension, have, however, never struck me with any force. Bare and improbable possibilities ought not to be subjects of reasonable and sober calculation. What is certain far over-balances conjectured prognostics.—The bridge, if left uncovered will most assuredly decay in ten or twelve years. Experience is the best teacher in all cases.—The modes of protection proposed in these drafts, have proof to support them, drawn from long and respectable experiment. Among others the Shaffhausen bridge was a strong instance. It had been by its cover, effectually preserved from decay for thirty-eight years, and was perfectly sound, at the time the French destroyed it. We have never heard of its being injured by tempests, though in a situation much exposed to them. In the eleventh report to the British Parliament, by the Commissioners of Land Revenue, dated February 6th, 1792, it will be found stated, from settled facts, that timber, secured in the manner here proposed, is of very long duration."

"Ships built under cover are the most durable. In Venice, ships have, for a long course of time been built and preserved under cover. That practice has also been introduced into Sweden; and is mentioned by Mr. Necker, in his treatise on the finances of France. The Venetian ships of war are built and preserved from the weather while building, under sheds covered

with tiles, resembling the roofs of houses supported mostly by brick walls on each side, to defend the workmen in winter, from the inclemency of the weather; which walls are as high as the upper parts of the ships reach and secured by cross-beams, high enough to admit of ships being launched under them. The sheds cover the ships completely on both sides; but are open at the stem and stern; only projecting a few feet farther out; and there they have temporary covers of boards to keep out the rain. Eighteen large ships, some pierced for eighty guns, have been thus preserved, perfectly sound (in 1792) for fifty-nine years; under the sheds." "I contrast with the foregoing facts, those I have collected on the subject of timber generally; and those relative to the uncovered wooden bridges in America, particularly. It is to be regretted that all these structures are thus destitute of the means of preservation. I now confine myself to the account of them I recently received from Mr. Timothy Palmer; in a letter dated the 10th of December last, in these words:—"To some questions you put to me some time since, relative to the durability of timber bridges, without being covered sides and top, I answer, from the experience that I have had in New-England and Maryland—that they will not last for more than ten or twelve years, to be safe for heavy carriages to pass over. The bridge near Newburyport, over the Merrimack, was built in the year 1792. It was repaired in the year 1802. The bridge at Andover, cross the same river, was built in 1793. It was rebuilt in 1803. Picaraqua bridge, near Portsmouth, (N. H.) was built in 1794. I believe there have been no repairs since, except the Draw. But I have lately been informed it was much decayed, and is to be repaired next season. The bridge that I built over the Potomac at Georgetown, in 1796, is not safe for heavy teams to pass over. Some have tried paint in the joints, others turpentine and oil, but all to no great effect. I am an advocate for weather boarding and roofing, although there are some that say I argue much against my own interest. Notwithstanding, I am determined to give my opinion as appears to me to be right. And it is sincerely my opinion, that the Schuylkill bridge will last 50 or perhaps 60 years, if well covered.—You will excuse me in saying that I think it would be sporting with property, to suffer that beautiful piece of architecture (as you are pleased sometimes to call it) which has been built at so great expense and danger, to fall into ruins in 10 or 12 years!" Need much be added on the subject generally, after these statements, and remarks of a practically intelligent and worthy man?"

"Never then conceiving, that any objections would be made to covering the bridge, I furnished several sketches for covers (as no person better qualified would do it,) contemporaneously with Mr. Palmer's drafting his plan; and always considered the cover as much a part of the plan, as the frame. Knowing the liability of timber uncovered to decay, I should not have thought it justifiable to invite subscriptions to our stock, unless I had taken it for granted, that the bridge would be protected by some cover. I prevailed on Mr. Palmer to suf-

for me to alter his plan, in several important particulars; with a view to my design for a cover. To this he liberally consented; and now considers these alterations to be valuable improvements; and has declared his intention to adopt them in all his future plans for bridges. The masonry too, was calculated by Mr. Vickers, agreeably to drafts furnished by me, for a cover similar to that marked No. 1. delineated by Mr. Adam Traquair from my sketches. I mention these facts, not with any view to individual merit, but to show contemporaneous opinions; for I communicated every thing to those with whom I acted, as I occasionally met them. I presented an estimate (as correct no doubt as those generally are) calculated for this design: made at my request by Mr. William Garrigues and Mr. Samuel Robinson, then superintendent. It may be applied to any other with no great variation. It amounts to eight thousand dollars, a sum bearing no important proportion to the loss of capital, by the decay of the structure on which it has been expended. No. 2 and 3, are other designs for covers, which I have procured to be made.—No. 2 is an improvement on the first sketch, made with the assistance of Mr. Dorsey and Mr. Traquair. Mr. Oweo Biddle furnished the sketch No. 3."

"It is a mistake, in my opinion, into which some respectable gentlemen have fallen, that the timber will be benefitted by remaining for a season uncovered. The leakages during rains, or the melting of snows, percolating through almost all the joints of the frame and the platform, sufficiently refute this idea. Every week and month this finish to our work is unnecessarily delayed, is an advance to ruin. No time should therefore be lost in preparations for the cover, which I have always considered as a part of the original plan; and not a new, or additional measure, though the exact design, or elevation, was not specially fixed."

"No person can regret more than I do, the unforeseen but inevitable expenditures of the stockholders. None can give them more credit than I do for their patience, under long and unpleasant privations. These will, however, now, with the success of our work, be remunerated. But it is their interest, and our duty, to secure what, with uncommon difficulties, and such heavy expenses, has been accomplished. Their stock will be appreciated, when the object of it is rendered in its duration, as well as other attributes, really permanent. It would be a reflection upon their understandings, and, with the knowledge we have on the subject, a breach of our trust, to practise a dangerous and false economy, and thereby incur the penalty of certain destruction. I beg the excuse of the board for giving my sentiments at length on the subject.—It is one on which I thought it my duty, whatever may be the result, to be explicit."

RICHARD PETERS.

On the White Lupin.

BRIGHTON, Nov. 5, 1821.

DEAR SIR,

Among the various plants applied as green dressings for the restoration of worn out soils, the WHITE LUPIN stands pre-eminent in those climates that will

permit their growth between the periods of harvest and seed time. That a trial may be made with them, I have forwarded, by Mr. Stone, half a bushel of the seed, which I trust you will cheerfully distribute for the benefit of our Southern brethren. They were sent to me from Fayal; and the following account, which I have collected, of the effects of their culture, will, I at least, serve to convince us, that "the Earth, ever subservient to the wants of man," when exhausted by his insatiable demands, requires from him but a little mechanical aid, to enable her still to "spread his walks with flowers and his table with plenty."—The island of Fayal though in the same parallel of latitude with Maryland, is subject to a temperature seldom above 50, or below 55 degrees of Fahrenheit. The soil is thin, and incumbent on *scorie* and other *undecomposed* volcanic substances; but naturally exceedingly fertile. For a long period of time, every part accessible to the plough, has been in tillage; and, with the exception of selected patches shifted for flax, under alternate crops of wheat and Indian corn, (the latter being the chief food of the labouring classes.) Such a system of severe cropping; the resources for manure very limited, and without the advantage of improved implements or modes of culture, caused a visible deterioration of the soil; the crops lessened from year to year; partial importations were resorted to; and the well born of the island became seriously apprehensive of the most distressing consequences.

Provisionally, some 15 or 20 years since, the *White Lupin* was introduced from Italy, and though it came by accident, to a people strongly bigoted to old practices of husbandry, the cultivation soon became general.

The wheat and corn are harvested in August, the land is soon after ploughed and Lupins sown on the surface, or but slightly covered, at the rate of two bushels per acre. In February they flower, and are then turned in with the wheat, corn or flax in their several rotations. By this management a progressive improvement of the soil has become apparent: there are no longer apprehensions of famine; a very redundant population subsists; and besides supplying 20,000 on the neighbouring island of Pico, where scarce any thing but the *wine* is cultivated, a surplus is often sent to other islands, and in some instances to LISBON!

Lupins are ranked by Gardeners among the hardy annuals, but I am not able to say what degree of frost they will bear. From a single experiment I am led to believe that, owing to the droughts to which our climate is subject, not much advantage will be derived by sowing them on summer fallows as a dressing for winter crops. Their application to spring crops, in those sections of our country where they can be grown in season for that purpose, will probably become the first object of experiment; and should more be wanted for extending such trials, or for raising seed, they may be obtained with facility, on application to Charles W. Dabney, Esq. United States Vice Consul at Fayal; who, I am confident, will be highly gratified by having an opportunity of rendering services to his country.

I remain dear sir, truly yours,

S. W. POMEROY.

CHILI WHEAT.

To the Editors of the National Intelligencer.

MERIDIAN HILL, Nov. 12.

Gentlemen—In consequence of the notice in your paper some time since, that I had some Chili wheat to distribute, I have received letters from many gentlemen in different parts of our country, who are desirous of obtaining it, but who are ignorant as to the quantity I have to spare, the price they are to pay for it, and the advantage it possesses over the wheat of the country. May I, therefore, ask of you to inform them that I have now only about 4

or 5 bushels remaining; that I have given my servants orders to give to any one who may send for it, one quart; that all that is required for it is the satisfaction of distributing it; and that the advantage it has over common wheat, is its greater productiveness and less liability to shatter out in the field.

Those who wish to make a trial of it, can obtain a quart by sending for it, so long as I have so much on hand.

With great esteem, your obedient Servant,
D. PORTER.

P. S. When Judge Bliss came from Chili, I sowed a small vine-land full of the wheat he brought with him on 1500 square feet of ground, and reaped therefrom one half bushel and three quarts of grain. The next year I obtained upwards of 25 bushels, which I had ground into flour, the best that has been in my family since I have been in the District.

BEER & BREAD.

At the house of a most estimable friend, a farmer of Massachusetts—whose table affords all the luxuries which taste can select and wealth command, we of choice, ate and drank *domestic Bread & Beer*—made according to the following recipes.

HOP BEER.

Boil one quarter of a pound of hops in three or four pails of water, till the leaves settle and are thoroughly boiled so as to separate from the head, strain the liquor through a sieve into a cask not exceeding fifteen gallons in gauge, add one gallon good molasses when hot, then fill the cask with cold water, shake it well for a few minutes, and when the liquor is blood warm put in one pint of good foaming yeast, which must completely fill the cask to the upper side of the bung stave, that when it ferments it may throw off every foul particle; before the fermentation has entirely subsided, bung it close, let it stand three days and it will be fit for use, do not tap the cask as you draw, nor should it after drawing be vented, it will run without a vent generally, but if air is admitted it will become flat.—To preserve it longer than it will keep in casks, bottle off two or three dozen which will keep well several weeks, and when opened give a fine cap, and be very sprightly.

RYE AND INDIAN BREAD.

An equal quantity of rye and Indian meal, *meal from the best yellow corn*, sifted so as to separate the meal from the bran, stir it well together and mix it with water as hot as the hand can be borne in it, knead it faithfully, much depends on that, after which put half the quantity of good yeast allowed for the same quantity of wheat or flour bread—it must not be made as hard or stiff as flour bread, and does not take so much time to rise; it requires a hotter oven, and will not bake in less than six hours, and is improved by standing eight or even ten hours in the oven, from the time it is first put in—we use in this part of the country for this kind of bread, iron pans, shaped something like a flower pot—the shape may not be material as to the quality of the bread, but that form gives the best slices for brown bread toast.

Remedy for the Gout by Dr. Bradley, purchased by Napoleon, at the price of £2,500 sterling

Balm of Mecca	-	-	six drachms
Real Bark	-	-	one ounce
Saffron	-	-	half an ounce
Sasaparilla	-	-	one ounce
Sage	-	-	one ounce

Rectified Spirits of Wine one ounce

Dissolve separately, the Balm Mecca in one ounce of the Spirits of Wine—macerate the rest of the substances in the remainder, for 48 hours

—filter and mix the two liquors. For use the tincture obtained is mixed with twice or three the quantity of line water; the bottle must be shaken, in order to mix the precipitate settled to the bottom by standing.

The following is a mode of employing the remedy.

A poultice must be prepared of linseed meal, which must be of a good consistency, and spread very hot of the thickness of a finger, on a napkin, so as to be able completely to surround the part affected: if it be required for both legs, use three quarts of linseed meal.

When the poultice is prepared, and as hot as the patient can bear it, about two ounces of the prepared liquor must be poured equally over the whole surface of each, without its being inhibited; the part affected is then to be wrapped up in it, and bound up with flannel and bandages to preserve the heat.

The poultice is generally changed every twenty-four hours, sometimes at the end of twelve.

Method of cleansing Silk, Woolen and Cotton Goods without damage to the texture or colour.

Take raw potatoes, in the state they are taken out of the earth; wash them well; then rub them on a grater over a vessel of clean water to a fine pulp, pass the liquid matter through a coarse sieve into another tub of clear water; let the mixture stand till the fine white particles of the potatoes are precipitated; then pour the mucilaginous liquor from the fecula, and preserve this liquor for use. The article to be cleaned should then be laid upon a linen cloth on a table, and having provided a clean sponge dip the sponge in the potatoe liquor, and apply the sponge thus wet upon the article to be cleaned, and rub it well upon it with repeated portions of the potatoe liquor, till the dirt is perfectly separated; then wash the article in clear water several times, to remove the loose dirt; it may afterwards be smoothed or dried. Two middle sized potatoes will be sufficient for a pint of water.

The white fecula which separates in making the mucilaginous liquor, will answer the purpose of tapioca, will make an useful nourishing food with soup or milk, or serve to make starch or hair powder.

The coarse pulp which does not pass the sieve is of great use in cleaning worsted curtains, tapestry, carpets, or other coarse goods.

The mucilaginous liquor of the potatoes will clear all sorts of silk, cotton, or wollen goods, without hurting the texture of the articles or spoiling the color.

It is also useful in cleansing oil, paintings, or furniture that is soiled.

Dirty painted wainscots may be cleaned by wetting a sponge in the liquor, then dipping it in a little fine clean sand and afterwards rubbing the wainscott therewith.

Editorial Correspondence.

FREEZING CIDER.

Further experiments, since the publication of my Book on Fruit Trees, have confirmed my opinion of the efficacy of freezing the best Ciders, in forming

the best substitute for foreign Wines—far superior to the ordinary liquors procured by boiling with sugar and brandy, under the imposing name of home made wine, both from their superior flavor and greater salubrity. I am sir, with great respect, very truly your obedient servant,

WM. COXE.

Trial of Ploughs.

November 9th, 1821.

Mr DEAR SIR, I said something in my letter by Mr. S. or alluded to a plough mentioned in your farmer as requiring less power than any other plough, and doing the work well—Mr. P. who I saw yesterday it seems was struck with the advertisement of the plough and has written friend Davis on the subject.—I doubt the method of testing by the Dynamometer in manner of Mr. D. and send you our method taken after a ploughing match in 1819—which follows, viz:

Oct. 13, 1819. Committee of trustees tried after the ploughing match this day, the following ploughs that had competed for premiums, and a plough invented by J. W. Sumner, Esq. which was not entered for premium—the different degrees of power required for each plough was ascertained by the Dynamometer, or Index Swing Tree, brought by Cap. Tracy from London, for the use of the society—each plough turned such a furrow as best suited the plough and ploughman, after which the furrows were accurately measured and brought into cubic inches, it having been found that 100 pounds power gave seventeen inches and one eighth power—the following is the result.

No.	Plough	Force in Pounds	Force in Cwt	Force in Tons	Force in Horses	Force in Oxen	Force in Men	Force in Boys	Force in Children
1.	G. Parson's plough made by Isaac & Son of Hingham	13 by 33	715	414	100 gvw	17	1.8	1.5	1.2
2.	Capt. Cook's plough by Warren of Dedham	13 by 54	71	414	100 gvw	17	1.7	1.5	1.2
3.	Seaton Williams' plough, by D. D.	16 by 4	64	414	100 gvw	17	1.7	1.5	1.2
4.	Mr. Warren's new plough, by himself	15 by 54	79	337	100 gvw	14	1.4	1.4	1.4
5.	T. W. Sumner, Esq. plough invented by himself	23 by 54	713	504	100 gvw	14	1.4	1.4	1.4
6.	John Josiah Quincy's plough, made by Free-2	99 by 5	473	387	100 gvw	13	1.3	1.3	1.3
7.	E. H. Derby, Esq. plough from England, small Scotch plough	11 by 6	66	443	100 gvw	12	1.2	1.2	1.2

Thus you see the *Mr. plus ultra Plough*, which took the first premium in Essex of \$20 dollars this season, requires less power than any other that has yet been

tested. It has now taken one hundred and eleven tollars premium; Mr. S. was a warm friend to it and can tell you that I take the kind of care of it bestowed on my best razor for shaving, and to which I am not a little attached.

I was pleased with the communication of your friend Minor, on the subject of attempting to palm on the public an old and long tried agricultural implement as a new invention. I agree with him perfectly that such attempts should be held up for public derision. Your correspondent S. V. S. has brought the whole after guard of my family upon me. Mr. P. begins to perceive something that has a cancerous look on my lip—and they all side with Mr. S. P. S. who by the way I do not believe is a smoker, and knows nothing of the fine effect of a high flavored cigar after tugging and toiling all day. I wonder if he is aware that men never quarrel when smoking; angry passions once raised out goes the pipe, even more, it is not held in the hand but laid aside before a man can feel all the evil passions which fit him for Pandemonium.

JOHN S. SKINNER, Esq.

REMEDY FOR SORE EYES.

Boil a quarter of an ounce of Camomile Flowers in a pint of new milk, and wash the Eyes three or four times a day.

THE FARMER.

BALTIMORE, FRIDAY, NOVEMBER 16, 1821.

Flour from the wagons \$5 50—Wharf do \$6 25—Whiskey from the wagons 31 cents, exclusive of bbl.—Red Wheat, \$1 20 and \$1 23—one sale of Red Wheat raised by John Sotherton at \$1 30 cts—White Wheat may be quoted at \$1 30 and \$1 40—but none of good quality has been at market this week—Corn, 60 Rye, 60 and 65—other grain as last week.

Live Cattle, \$4 50 and \$6—Butter, 31—Eggs per dozen, 25—Hams, 14—Middlings, 8 and 9—Cod-fish, per quintal, wholesale, \$3 50 and \$4—New England Beans, per bushel, \$1 12½—do Peas, 75—Prime beef per bbl. \$9—Prime Pork, \$16 and \$11—Mess, \$15—

Maryland Tobacco, very flat and few sales—Virginia and Kentucky, none.

AGRICULTURAL ALMANAC FOR 1822.

Just published in Philadelphia, by Messrs Griggs and Dickinson, and for sale by the Subscriber in this city, at the Printing-Office of the AMERICAN FARMER, corner of Market and Belvidera streets.

Agricultural Almanac for 1822

Besides containing a good Calendar, interleaved with blank writing paper for memoranda, it has very many useful articles connected with the interests of Husbandry, and which make it particularly valuable to the Farmer.

Orders from the Country will meet with prompt attention—and a liberal discount made when purchased by the quantity to sell again.

JOSEPH ROBINSON.

November 16, 1821.

AN OVERSEER.

I wish to be employed as an Overseer upon a Farm in a healthy part of the country. To Mr. R. Smith, I refer for information as to my sobriety, industry, and knowledge of all kind of farming business, and as to the capacity of my wife to take charge of a dairy. We are from Surry, England, and have been long enough in this country to be acquainted with its best modes of cultivation.

November 16, 1821.

E. KEEN.

PUBLISHED BY JOHN S. SKINNER.

AMERICAN FARMER.

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VIRGINIA HUSBANDRY.

Wier's Cave.

On reading the subjoined description of one of the most stupendous natural curiosities to be found in this or any other country—though it may afford some amusement, the question will still recur—what is the connexion between the *Caves* & the *Agriculture* of Virginia?—very true! It would require a lively imagination to discern the connexion, but then I have adopted a certain heading for the desultory observations I had to make on what particularly attracted my notice in passing through an interesting portion of the State, at a pace, and in a state of health that did not admit of diffuse inquiry and methodical reflection—and so I make my heading like the bed of Procrustes, unalterable in figure or dimensions, and every subject must be made to fit it.

The passing traveller, on the road to Staunton, would be unfortunate, if he were not reminded that it brings him in the vicinity of Wier's Cave where

"Rocks reared on rocks in huge disjointed piles,
"Form the tall turrets and the lengthened ailes;
"Broad ponderous piers sustain the roof, and wide,
"Branch the vast rain-bow ribs from side to side.
"While from above descends in misty streams,
"One scanty pencil of illusive beams,
"Suspended crags and gaping gulphs illumed,
"And gulds the horrors of the deepened glooms."

From the house of Mr. J***** W*****, where I rested some days and was recruited by the kindest and most grateful attentions, I went to explore this wonderful Cavern—for since the discovery of Wier's—Madison's cave has fallen into comparative insignificance. I find no necessity to describe it since it has been by a much abler pen, so happily done, in the following account, by an eminent citizen of North Carolina.

Edit. Am. Farmer.

WIER'S CAVE.



Description of Wier's Cave, in Augusta County, Virginia, in a letter from General CALVIN JONES to Mr. J***** in North Carolina—communicated to the Editor of the Raleigh (North Carolina) Star. Botetourt County, (Va.) March 17, 1815.

MY DEAR SIR,

Detained here (for this day at least) by a rain, I will occupy a part of the leisure it allows by an endeavour to make you participate in some degree in the pleasures my tour has afforded me; and as I know the interest you take in the rude but bold workmanship of nature, I will give you an account, though a brief and imperfect one, of a place very little known, where she has made some of her happiest efforts.

Since my last from Winchester, I have visited the Caves in Augusta, and the Natural Bridge in the county to which it has given name. The former exceeded, but the latter did not equal my expectations. I saw the Bridge, I presume, under circumstances that were not favourable to the emotions of the sublime. I had a little before seen in the grand, romantic scenery at, and around Harper's Ferry, where the Potomac passes through the blue Ridge—I had just beheld the wondrous super-terrestrial palaces in Augusta: every step, as I advanced up the rich and beautiful valley of Shenandoah, bounded on one side by the Blue Ridge, and on the other by the North Mountains, presented objects calculated to keep the sublime emotions in a constant state of excitement. Besides my expectations concerning the bridge, were too highly raised by Mr. Jefferson's splendid and fanciful description of it. When I saw it I felt disappointed. I walked to the edge and looked down without feeling terror. I went below and looked up, and was not astonished. It indeed possesses grandeur and sublimity; but to my mind, Wier's Cave is best worth the attention of the traveller. There every thing that the mind can conceive of the grand and beautiful is realized. The Bridge affords only two or three views—the Cave a thousand.

In my progress up the valley I was attracted to Madison's Cave by Mr. Jefferson's description of it, but had much difficulty in obtaining directions where to find it, other than those contained in the Notes. Maps of Virginia I could no where meet with, though I made diligent inquiry, except the old one of Fry and J. B. Vaux, which I saw at Fray's in Woodsstock; so that it was not until I had arrived within 20 miles of the Cave I could ascertain its place, and there I learned for the first time that another Cave had recently been discovered near it, and so far surpassing it in extent and grandeur, that Madison's had ceased to be an object of curiosity.

I found the Caves to be in the N. E. corner of Augusta county very near the Hockingham line, two miles from Fort Republic, a little town at the confluence of the two branches of the Shenandoah, a little out of the direct route from New Market to Staunton, thirty miles from the former, and seven from the latter place, increasing the distance between them three or four miles, but more than compensating the traveller by telling other considerations out of the question at this season of the year, by the superior quality of the road.—This place may be visited from Charlottesville on the other side of the Blue Ridge, 32 miles distant, by a turnpike road through Brown's gap. To Richmond is 120 miles. I expect you would prefer the route to Brown's gap, as Monticello would then be in your way.

* Pronounced with a full accent on the first and last syllables, "Shannondore."

The hill in which the caves are, presents a perpendicular front of 200 feet in height to the south branch of the Shenandoah, looking northeasterly towards the Blue Mountains, three miles distant beyond the river. Its front on the river is about half a mile, but spreading wider as it recedes—its height declines gradually back until it dissolves into the plain. Of Madison's Cave I shall say but little, Mr. Jefferson's description of it being ample. It derives its name from the father of the late Bishop Madison, who resided near it; and who, when alive, was equally famed for his hospitality, his practical wit, (which lay more in his heels and fingers than in his head) and his convivial disposition. It has been known 60 or 70 years, but is now little visited as a curiosity. The earth in it affords Salt-Petre in the proportion of from two to four lbs. to the bushel; 2000 weight was manufactured here during the last two years. The earth when brought out is, at the mouth of the Cave, put into a plank gutter which conducts it to the bank of the river at the bottom of the hill, where it is put into the tubs or vats mixed with wood ashes; water is passed through it, and this is evaporated to a salt by boiling. The lakes of water which are found at the extremity of the Cave have been navigated by a boat, and thoroughly explored since Mr. Jefferson wrote. They are 30 or 40 feet deep, and bounded on the furthest edge by rocks so abrupt, that a footing can nowhere be had, limiting for the present further discoveries in that direction. I advised the proprietor to put fish into them, which he promised to do, so that visitants may probably in a few years add fishing to the entertainments afforded by the excursion.

Madison's Cave, as you know from Mr. Jefferson's description, has its entrance about two thirds of the way to the top of the hill, immediately over the river. The mouth of Wier's Cave is parallel to it in the same hill, two or three hundred yards further up the river. Madison's Cave penetrates 120 yards; Wier's 900. This last was discovered in February, 1816, by the man whose name it bears, and this I propose to give you some faint idea of by a description brief and necessarily very imperfect. But to obviate its imperfections and aid your comprehension, I herewith give you the outlines of its course and apartments, incorrect no doubt, but, bearing some resemblance to what it would represent, and the best I am able to offer. The letters in the plan will be referred to in the course of our route. The index points to the entrance: the arrows mark the descent in places where it is most considerable.

The Cave is solid limestone, sometimes ascending, but more commonly descending in its course, narrow and low at the entrance, but increasing in height as you advance, until it becomes 80 or 90 feet high. Water is constantly dropping from the arch and trickling down the sides, not in quantities sufficient to affect the lights or incommode the visitors. This forms stalactites of every possible form and every variety of beauty. The colours are for the most part white, but sometimes red, and occasionally variegated. It is not every where that stone is formed by this percolation of the water. Sometimes it finds little basins formed to receive it, and again there are sinks through which it falls and disappears.

The entrance is closed by a door of two feet and a half or three feet square. You grope through a narrow passage until you reach the Anti-Chamber, (A) whose arch 12 or 15 feet high, is supported by pillars in the centre. On the left is a recess difficult to traverse on account of the huge misshapen rocks which are every where thrown rudely about it. From the Anti-Chamber you enter a narrow passage, creep in one

place and incline your body obliquely to the left between two sheets of rock in another. Descending some hewn steps and a wooden ladder, you come into Solomon's Temple (B)—on the left is a large fluted column called Solomon's Pillar, and on the sides of the apartment are curtains descending in wave-like folds from the ceiling to the floor. The room is 25 feet high. A recess on the left contains a fine basin of water, and is called the Bar Room. Ascending a ladder you find yourself on a steep narrow rock, from which you look back and see the various beauties of the Temple to great advantage. By another ladder you descend into the Curtain Room, (C) which is profusely ornamented with a great variety of beautiful drapery. There is such elegance and regularity in these ornaments that, if seen in small detached parts, it would be difficult to persuade one that they were not works of art. The curtains usually descend from the arch to the floor on the sides of the Cave, and are from 5 to 6 feet wide, and from 2 inches to half an inch in thickness. They hang from six to twelve inches asunder, and are commonly white and transparent. As the drapery in this apartment is the most remarkable, though it is found in every part of the Cavern, it may be well now, once for all, to take a passing notice of two forms that most frequently occur in every part of the Cavern. The explorer will see the best examples of each in the S. fa and Gallery, presently to be mentioned. At the upper edge of the valance where the depending part commences, there is a cord running round each—From this the curtain descends a foot or two, solid, but in the one indented by semi-circular cavities about two inches in cord, parallel and exactly in form—in the other, instead of cavities there is precisely as much projection, and the proportions in both are as regular and exact, as if they had been produced by the chisel of the artist.

The Tambourin or Music Room (D) is next. This abounds with stalactites similar to the curtains in the preceding rooms, but finer and more variously toned, and the room is better calculated for effect. These tones (produced by striking), are various and good, and were the notes ascertained, which each would produce, a skillful hand could draw music from them. You now ascend a natural and well formed staircase running across the passage with a row of bannisters along its side of a proper height for the hand to rest on—and then descending a ladder into the Ball Room, (E) which is 190 feet long, and the arch 15 to 20 feet high. The floor is smooth and level, and the sides ornamented with curtains, colonnades, and various resemblances to household furniture. Betsy's Sofa is remarkable here for its elegance and resemblance to art. The floor has evidently been lowered in time. Some of the columns are ruptured and discoloured in the middle of the shaft, and do not meet by some inches. Others have fallen and lie in ruins.

The curious explorer now comes to the most straitened passage in the Cavern, (F) and which was for some time the boundary of the discoveries in it. The way, though enlarged beyond its original dimensions, is steep, narrow, and difficult. He must creep on all-fours, and on account of its descent must go backwards. He is covered with mud, fatigued with his posture and exertions, and it is well if his head and back escape a rude contact with the rough stones above him. At length he regains his feet—looks back upon the narrow aperture by which he entered reflects that he is almost a quarter of a mile from the regions of upper air, carries his candle with more steady hand, and feels himself intonted. Knowing that our corpulent acquaintance Mrs. T. . . had visited this Cavern, I asked my guide if she passed these straits. He assured me that she did, "that she crept, and stumbled, and slid along like an otter, and got through without any sort of difficulty and what was more," he added, "no woman ever yet stopped half way; they always went to the extremity."

Descending some steps hewn out of the rock, called Jacob's Ladder, you enter the Vestibule, (G) the arch of which is about the same height as that of the Temple. On your left as you enter, a horizontal sheet of stone, a foot thick and 20 feet in a diameter,

projects from the side of the Cave about midway between the floor and the ceiling called Mary's Gallery. This is a striking object from its rich ornaments. Connected with this Vestibule is the Saloon (H). Returning and entering a passage on the left, Washington's Hall, (I) the grandest part of the Cavern is open to your view. You stand at the entrance; the guides go forward and arrange lights at certain distances. The long level floor rings beneath their tread. You see them at a hundred paces distance and hear their voices resounding from the arch that rises sublimely eighty feet over your head. Every drop of water that falls rings in your ears. On your right is a row of marble statues. In the centre, before the entrance of Lady Washington's Drawing Room, is a statue of noble mien and fair proportions, in the habiliments of an ancient Roman, called Washington's. You gaze and listen in silent rapture. At length you are roused from the enchantments of the scene by being reminded by your guides, that you have still much to see—Lady Washington's Drawing Room, (K) is next visited; a spacious and handsome apartment, just within the room on the right, is a large Bureau on which many names are inscribed. It conformed to the general custom by engraving the initial letters, of one I happened then to think of. In this apartment a rock of immense magnitude has fallen from the arched ceiling above, and converted into a heap of ruins a number of massive columns that were standing near it. In Washington's Hall, a column two feet in diameter has fallen, probably from the settling of the floor, which certainly has a Cavern beneath it. The Diamond Room, (L) is next and derives its name from the sparkling brilliancy of its walls. The Enchanted Room, (M) has a wild variety, which, by the help of a vivid imagination, may be transformed into a new creation. Here, in one place, an immense mass of rock hangs so loosely over you, so apparently without support, that it seems to threaten you with instant annihilation. Here is a basin containing a hog-head or two of pure water, which, after the fatigue experienced, is grateful and refreshing. Returning by the same passage through the Diamond Room, you come to the Wilderness, (N) rough and irregular below, on the sides and above. Either here or in the Enchanted Room, I do not remember which, there is a large column of 25 or 30 feet in diameter, called the Tower of Babel. The Garden of Eden, (O) is the last scene. This room is spacious, lofty, and its decorations are superb and various. A rock apparently floating over you, called Elijah's Mantle, a large white curtain, and a rock called the Salt Mountain, seen at a distance through a colonnade, are the most remarkable particulars that I noticed here.

I now returned and regained the mouth of the Cave, after having been within it two hours and three quarters. But the time was too short to enable one on a first visit to notice the Cave with the accuracy necessary to give a full or correct description of it. An English painter who was some weeks here, said that years were necessary to give any thing like a correct representation of it by the pencil.

The Saloon (H) cannot be very distant from Madison's Cave, and had time permitted, I should have attempted to discover a communication between them, by firing a musket in one Cave, while the report was listened for in the other.—The mention of this reminds me of the remarkable effect which I am told the explosion of a pistol produces in some parts of Wier's Cave.—The sound is astonishingly loud, and is prolonged and echoed back from the distant recesses; and after a considerable silence it is once and again returned, when you have supposed it exhausted.—I had not the forethought to supply myself with the means of making this experiment.

The temperature of this Cave, I am told, is 54, and never varies.

A German of the name of Aymand, was once the proprietor of this Cave, and his name has sometimes been given to it. It is now the property of Mr. Dingham, who keeps a good house of entertainment near it; but the honour of the name is certainly due to the discoverer. Mr. Wier made the discovery by pursuing with a dog, game which took refuge here, and

he prosecuted it with as much ardour, and at almost as much peril as Cook prosecuted his discoveries in the trackless ocean. The proprietor keeps a lock upon the door of the Cave, and charges 50 cents to each visitor, which produces him a considerable revenue.

Mr. Charles Lewis, who lives near Port Republic, accompanied me in my subterranean excursion, and contributed much to the gratification of it.

In following me, I fear you will share more of the fatigues than pleasures; but if I excite your curiosity sufficiently to induce you to make this place a visit, at some time when on your way to Washington, I shall have done you an essential service by enabling you to see and enjoy much in a little space, an important consideration in the economy of a life whose duration is contracted to a span.

I am, my dear sir, with every sentiment of respect and esteem, yours, as ever,

CALVIN JONES.

AGRICULTURE.

THIRD ANNIVERSARY OF THE ALBANY COUNTY

Agricultural Society.

TUESDAY, OCTOBER 9, 1821.

In publishing their third annual report, the Executive Committee have much pleasure in being enabled to congratulate their fellow citizens on an increased attention to the members of the society to the objects of its institution, and on the success which has crowned their efforts since the last anniversary. The reports of the several committees, as well as their own observation, warrant them in ascribing to the Agricultural Society a very salutary influence on the farming interests of the county. The exhibition of animals, in number, variety and quality, exceeded that of any former year; and the specimens of household manufactures were many of them excellent—indicating an improvement in that branch of domestic economy, which may ere long supersede the necessity of resorting to foreign markets, even for our most fabrics. Among the articles exhibited was a hay's docket, made of a species of grass common in this country, in imitation of the imported Leghorns, and not inferior to them in beauty or durability. The fair artist who produced this ingenious specimen of workmanship, is Miss Eliza W. Patterson, of Greenough. Her residence being out of this county, the committee were precluded from the pleasure of awarding to her the premium which her industry and ingenuity merited. The ploughing match was unusually well supported. Thirteen teams started for the prize, and the contest was sustained with a steady firmness, which did great credit to the ploughmen. It is difficult to imagine a scene more interesting. The novelty of the spectacle and the fineness of the weather, had drawn together a vast collection of spectators, who testified their approbation by repeated cheerings, and appeared highly gratified with the appearances of the day.

WEDNESDAY, OCTOBER 10.

The members of the society assembled at Skinner's Mansion House, and after having elected their officers for the ensuing year, marched in procession to the Lancaster School House, preceded by a cart drawn by six oxen, decorated with the flags of the society, and literally loaded with specimens of household manufactures and the choicest productions of the earth; bearing also a stand, which displayed to great advantage the plate intended for premiums. Having, with much difficulty, on account of the press of people, obtained an entrance into the saloon room, and order being restored, the Rev. Dr. Chester addressed the

* The Executive Committee recommended to the ploughmen, in future, to dress in white rifle frocks and trousers; as, in their opinion, uniformity in dress would add much to their good appearance.

Throne of Grace in an appropriate, fervent and eloquent prayer: after which, the annual address was delivered by JESSE BUEL, Esq. The Executive Committee forbore to speak of the merits of this address, as they have obtained the author's permission to make it a part of their report. The Hon. Stephen Van Rensselaer, president of the society, now proceeded to read the reports of the several committees, and award the premiums; which being concluded, the members of the society returned to the Mansion House, and partook of a farmer's dinner, prepared by Mr. Skinner in his neat and bountiful style. Harmony and good feeling pervaded the transactions of both days, and the society dispersed highly gratified, and under a full conviction of the beneficial results to the community derived from their united exertions.

Officers elected for the ensuing year—viz:

Stephen Van Rensselaer, President;
John Schuyler, Jr. First Vice-President;
John Beckman, Jr. Second Vice-President;
Joseph Alexander, Secretary;
Douw Fonda, Treasurer.

Executive Committee.

Solomon Van Rensselaer, Jesse Buel, John Townsend, Tunis Van Yechten, Thomas Hillhouse.

Viewing Committee.

Jeremiah Schuyler, Watervliet; Jesse Tyler, Bern; Daniel Conklin, Rensselaerville; Matthew Bullock, Bethlehem; Richard Van Kleeck, Guiderland; Jas. Bindget, Coeymans; Timothy Lake, Westerlo; Stephen Van Rensselaer, Jr. Albany.

Committee on Animals.

Neat Cattle.—Christopher Dunn, Volkert D. Oothoudt, John Gibbons.

Horses.—Peter Van Antwerp, Edward Haswell, Daniel Cray.

Sheep and Swine.—Aaron A. Moore, Frederick Palmer, Joseph Wayne.

Committee on Manufactures.

Isaiah Townsend, William James, Benjamin Knowlton.

Committee on Agriculture.

Jacob Ten Eyck, Gerret H. Lansing, William McKown.

TOWN COMMITTEES.

Watervliet.—Robert Dunbar, Jr. Michael Freleigh, Erastus Bigelow.

Guiderland.—Jonathan Brown, Cornelius H. Waldron, Cornelius Worman.

Bern.—Josiah B. Pinkney, Erastus Williams, Gideon Taber.

Rensselaerville.—Ephraim Crocker, Henry Spaun, John Linnen.

Westerlo.—James Holmes, Sylvester Ford, Thomas Myers.

Bethlehem.—David Sager, Aaron Fuller, William Sager, George Kirkard, Robert Hall, Jr. William Wren, Benjamin Van Zandt, Peter B. Winne, Jehoiakim Veeder, John W. McDougall.

Coeymans.—Barent Ten Eyck, Andrew Witbeck, John W. Huyck.

Albany.—William Chapman, Francis Bloodgood, Volkert P. Douw.

ADDRESS.

GENTLEMEN OF THE SOCIETY:

I feel a peculiar delicacy, young as I am known to be in the practice of farming, in addressing you on a subject which most of you have made the study and business of your lives. I wish the task had been placed in sabbar hands; but the Executive Committee having thought proper to assign it to me, I accepted it under a confident hope, that the errors and imperfections which may be disclosed in the discharge of this duty, will be kindly overlooked by this assembly, and that my intentions, at least, will be favourably appreciated. The ardor with which voices generally enter upon an *ag* business, may have generated in my mind opinions and maxims, in relation to hus-

bandry, which cannot bear the test of experience; but I will endeavor to avoid the detail of mere speculative opinions, and to confine my remarks to such facts as have been fairly verified by practice.

This society was established for the purpose of bettering the condition of agriculture, and of improving our household manufactures,—by rendering the skill, the experience and improvements of all, subservient to the interests of each individual member; of rendering labor more productive—our farmers more intelligent and wealthy—and of multiplying among us, those social, civil and domestic comforts, which give to society its best polish, and to life its purest enjoyments. In other words, the object of its institution was, as I think its tendency hitherto has been, to fit and qualify our yeomanry for the high and important moral and political duties which devolve upon them, as members of our republic. The farmers of our country constitute nine tenths of its population. They are emphatically the source of national wealth—our sword of defence against invasion from abroad, our shield of protection from the attacks of domestic foes, and the guardians of our inestimable institutions of government. How important is it, then, that they should possess that high minded and fearless independence, with which competence and intelligence are calculated to inspire a free and virtuous people.

The desirable work of improvement is progressing in our county; and it will continue to progress, so long as this society retains the countenance of its distinguished head and patron, and the support of the respectable body of gentlemen who now constitute its members. Nay, if this society should become extinct from the present day, the stimulus which it has already given to genius and to enterprise, will continue to display its benign effects for years to come. The seed of improvement has been sown, and it has germinated: under the blessing of Providence, the plant will grow, expand and mature; and so expansive will be its branches, that even the husbandman who has refused to nurture it, shall repose in its shade, and participate in its fruits.

I repeat, the work of improvement is progressing among us. Has not a laudible ambition to acquire useful knowledge, and to excel in husbandry, been manifested in all our towns? Has not a new spring been given to industry? Have not choice breeds of stock, valuable seeds, and improved implements of husbandry, a quired new value and been sought for and purchased by many who before did not appreciate their advantages? Have not our household manufactures been greatly improved in quality, and increased in quantity? I appeal to the gentlemen who compose your Viewing Committee, and who have lately made the tour of the county, if these questions do not deserve an affirmative answer. I appeal, for a corroboration, to the reports of the several committees, which are about to be read to you, and which will evince a productiveness of soil, and an improvement in tillage, exceeding any thing before known in this county, and, if I am correctly informed, in some instances surpassing the products of any of our sister counties. I ask you individually, gentlemen, if every town, if every neighbourhood, has not undergone a more than ordinary change for the better, within the last three years? And however wedded some of our citizens may be to the practice and system of their fathers, we have a flattering testimony that many, very many, have the courage and the wisdom to profity the improvements which science and skill are every where introducing, and which distinguish the present as a fortunate, as well as an important era in the history of the rural arts.

If proof is wanted, of the utility of institutions like ours, beyond what our experience affords, we have it of an incontestable character, in the history of similar societies. The first of the kind in our country, was established about the year 1794, in the county of Philadelphia. Its salutary influence has been demonstrated by the high state of cultivation which has been attained in that and the neighbouring counties, and which is not surpassed, for neatness and profit, in any section of the union. I believe I am

correct in saying, that the products of the lands within the sphere of its influence, have trebled since its institution. The memoirs of that society, now published in four volumes, comprize an invaluable fund of practical information, from many of the best farmers in America, and embrace, among the contributors to this fund, the venerated name of Washington. The neighbouring county of Berkshire, in Massachusetts, offers another forcible evidence of the utility of agricultural societies, in advancing the wealth, and promoting the happiness, of a community. If we look to Europe, the testimonies in their favor, are no less unequivocal. Within the last fifty years, the agricultural produce of England, we are told, has doubled, and that of Scotland quadrupled, in consequence, principally, of the establishment of a board of agriculture, and of agricultural societies.

The expiration of the term of subscription to the funds of our society, will be my apology for these preliminary remarks; and the considerations which I have suggested, will have some influence, I trust, in perpetuating the institution, and its consequent beneficial effects upon the wealth and respectability of our county.

I shall now take the liberty, gentlemen, to point out some of the prominent errors in our husbandry, and to suggest such improvements, as merit the attention, and come within the means of men of ordinary enterprise and capital.

The careful preservation, and suitable application, of manures, form one of the best criterions of a good farmer. Without attention to these, in old cultivated districts like ours, lands must become impoverished, and tillage an unprofitable branch of husbandry. Manures are to the vegetable, what food is to the animal. We cannot render the animal fat, without an abundance of nutritious food; nor the vegetable luxuriant and productive, without the aid of manures. Manures contain the constituents of the new plant and, as I before observed, are as necessary to its growth and perfection as food is to the growth and health of the animal body. "Agriculture," says a late writer, "may be considered to be a system of operations, calculated to convert manure into vegetable matter." "We have seen," he continues, (alluding to his preceding remarks,) "that the land, or soil, performs the part of an instrument in the process; that all the care in its preparation is only directed to assist the action of the manure. That water is a mere medium for conveying it as nourishment to plants, and that heat facilitates their action upon it." And Professor Cooper, in tracing the analogies between animals and vegetables, remarks, that "animal fibres are made from plants. So true is the scripture exclamation, that 'all flesh is grass.' An ox and a sheep are made up of vegetables, and so are we who devour them. Nothing is nourishment to an animal but what was originally a vegetable. In like manner, nothing is nourishment to a vegetable but what was originally a vegetable." Again, he says—"In animals, appetite may be provoked, and digestion assisted, by the artificial stimuli of what physicians call condiments, salt, pepper, wine, acids, bitters, &c. Such also is the property of vegetables. Their hands, mouths and stomachs are in the soil; and by the application of artificial stimuli, such as lime, common salt, alkalies, plaster of Paris, &c. their roots may be excited to want, to take in, and to digest, more nutriment than they would otherwise take in."

The prevalent errors in the economy of manures, are—a want of properly constructed farm yards; a neglect to stable or yard stock during the winter months; and a culpable waste of straw, stalks and other vegetable litter. We seldom see among our yards so constructed as to retain the fluids which are produced in them, and which are known to possess the most fertilizing properties. On the contrary, cattle yards are often located with the apparent intention of being drained into an adjoining field, a neighbouring brook, or the highway; and we frequently see them destitute of any substantial and permanent inclosures. The practice of feeding cattle at stacks, remote from the farm yard, occasions a waste of food.

der, a great loss of manure, and serious injury to grass grounds, which are poned by the cattle's hoofs. The waste of green and dry litter, is a still more serious injury to good husbandry. Straw, and stalks and husks of Indian corn are often fed in open fields, or suffered to waste in heaps, unpriized and unregarded: while the practice is very general to permit weeds of all kinds, after the crop is harvested, to ripen and show their seeds upon the fields, to the very serious injury of future crops; for these not only choke the young plants by their prolific growth, but rob them of a great portion of their nutriment.

To remedy these evils, and to render the barn yard what it ought to be, a source of fertility and profit to the farm, I would recommend, that the yard be excavated in the centre, to the depth of from three to four feet, according to its size, with a slope to the borders, which should be of an equal height all round, and sufficiently broad for the stock intended to be kept in it; and where the soil is not compact enough to retain moisture, that the bottom be properly bedded with clay, and covered with gravel or sand. Six or eight inches of strong clay, beat down compact, will answer the purpose. The labor to effect this will be trifling, and can be performed by the ordinary hands and team on a farm. Here should be annually deposited, as they can be conveniently collected, the weeds, coarse grass and brake of the farm; and also so much of the pea straw, pumpkin vines and potato-tops as cannot be ploughed under the soil in a succulent state. The quantity of these upon a farm exceeds belief, and are collected with little trouble, by the team returning from the fields. And here also should be fed out, or spread as litter, the hay, husks and stalks of Indian corn, and straw, except what is profitably used in the stables. To still further augment the barn yard manures, be-leached ashes should be added, and swamp earth may be, with manifest advantage. These materials will absorb the fluids of the yard, and, if carefully collected and deposited, double or treble the ordinary quantity of manure. The stock of the farm should be kept confined, except when let out for occasional exercise, or to obtain water, where this cannot be provided in the yard. Upon this management, from twelve to fifteen loads of unfertilized manure may be obtained every spring for each animal wintered in the yard; and if the manure of the stable is mixed with it, as is proper it should be, the mass is proportionately increased. I have obtained in this way thirteen loads to each beast. Any excess of liquid that may remain in the yard, can be profitably applied to grass lands, or to growing crops. It is used extensively in Flanders, and in other parts of Europe.

In regard to the application of these manures, and the state in which they are most profitably applied, new principles have been disseminated, and satisfactorily tested, which are at variance with general practice. These teach—

That manures ought to be applied in an unfertilized state;

That they should be ploughed under the surface as soon as practicable after they are taken from the yard; and,

That they should as seldom as possible be applied as a top dressing.

It has been ascertained by Davy, that animal manure loses sixty parts out of one hundred, when the process of fermentation is allowed to proceed uninterrupted as far as it is capable. Mr. Coke, one of the first agriculturists in England, after a trial of seven years, expresses his entire conviction, that unfertilized is as beneficial as fermented manure, laid for food; and that by the use of the former, he gained one third in quantity.

Vegetables consist principally of gases, or aerial fluids, which are evolved, or disengaged, during the process of fermentation. If this process takes place under the surface of the soil, these gases are imbibed by the new plant, and constitute its natural food. If the fermentation takes place in the farm yard, or on the surface of the ground, these valuable properties are lost, in proportion to the extent of the process of decomposition. Mr. Pickering, whose science and

practical knowledge in husbandry, qualify him to judge correctly on the subject, maintains, that yard manures cannot be ploughed under too deep, because its fertilizing properties, (the gases disengaged by fermentation) rise towards the surface; and for the reason, probably, also, that the roots of plants penetrate far food to the depth of ordinary ploughing. Mr. Taylor, of Virginia, the author of a valuable treatise on agriculture, under the title of *Arator*, a practical farmer, and a man of literature and science, carries the practice of converting vegetable matter into manure so far, as to bury, under high ridges, the branches of trees, and bushes, which are cut upon his farm. Upon these ridges, in subsequent years, he plants corn; and experience has demonstrated the utility of the practice. The same gentleman considers the stalks of Indian corn as one of the best materials for manure, both on account of their saccharine quality, and the long time they are decomposing in the ground.

All vegetables must undergo a complete decomposition, and become soluble, or dissolved, before they are food for plants. The nutriment they afford is then taken in by the roots and leaves. The durability of manures is co-extensive with the process of decomposition in the soil. Hence the firmer their texture, and the nearer they approach to woody fibre, the longer they are in rotting, and the longer they enrich the soil; and the more succulent and tender they are, the sooner they are decomposed, and exhausted of their fertilizing powers. Decomposition is facilitated by heat and moisture, and by solvents, such as lime, &c. I have known a pile of yard manure almost ruined in three months, by being mixed with quick lime. Corn stalks and cobs, and the straw of grain, impart fertility to the soil longer than a crop of green vegetables. Land manured with chips has become exceedingly productive after three or four years, and the fertility remained till the eleventh year. The fertility of new lands is owing entirely to the mass of vegetable matter accumulated upon their surface during the lapse of centuries; and these lands are impoverished in proportion as this mass becomes exhausted by tillage. It is much easier to keep them in good heart, by the timely application of manures, and the frequent alternation of grass, than to restore fertility after it has been exhausted by injudicious cropping.

It is objected to long, or unfertilized manures, that they are unsuitable for certain crops, such as flax, wheat, turnips, &c. Admit the objection to be a good one, does it follow, that under the new system they must be applied directly to these crops? By no means. Let the manure be applied to the preceding crop. I will illustrate my views, by detailing an experiment of my own. In May, 1810, I spread 140 loads of long manure, unfit, I will admit, for wheat, &c. upon four acres of clover ley, the soil a sandy loam, ploughed it under deep, and as moist as possible, rolled the ground, and planted it with corn. With common culture, two acres of the field gave 180 bushels. The corn was harvested in September, and the ground immediately ploughed once, harrowed, and sown with wheat. The wheat yielded, by measurement, thirty nine bushels, of sixty pounds per acre. The stubble was once ploughed in July, and I have now growing upon the same ground a crop of white turnips, making the third crop the field has yielded in eighteen months. Now I am persuaded, the manure was more beneficial to the wheat crop, than it would have been, had it remained in the yard till September, agreeable to common practice, and about as beneficial to the turnips, as if it had fermented upon the surface until it became a complete powder, a process required by some to prepare manure for this species of crop. Thus I gained at least the entire use of the manure to my corn, beyond what it would have been worth by the ordinary practice, by applying it in an unfertilized state. This experiment also demonstrates the bad policy of summer fallows, which would have given but one crop in the time I obtained three, at about the same expense of tillage. As an improvement on summer fallows, let stiff grounds be ploughed late in the fall, and

sands and loams in the spring, and a crop of peas, oats, corn or potatoes taken on the first furrow. The ground will then be in good preparation for a crop of wheat in September. The ploughing should be well done, and the ground afterwards rolled; and if a dressing of long manure is given before ploughing, it will insure at least two good crops.

The barn yard should be thoroughly cleared in the spring, before fermentation has progressed far, and the manure covered in the field ere it is injured by the sun and winds. To do this to advantage, the manure should be spread no faster than it can be ploughed under. In this state it is used to the best advantage upon corn, oats and potatoes, and particularly under ridges for ruta baga, mangle wurtzel, cabbages, beets and vines. The advantages of planting these crops on ridges, are, first, that the whole manure is placed precisely where the roots penetrate for food; and second, it is covered with a deep tith, which the vegetable requires for support and moisture. If buried six inches deep, and the ground afterwards rolled, I have experienced no inconvenience from the heat generated in fermentation, even in time of drought, and on dry porous soils. The seeds of grass and weeds, buried with the manure to this depth, seldom throw their shoots to the surface, or these come up so late as to be stunted by the already expanding corn, and are easily extirpated. For Indian corn, the manure ought to be spread before the last ploughing. It is thereby better distributed for the succeeding crop, and the roots of that plant, at the ordinary distance of planting, search under the whole surface for food. The manure from the horse stable is hotter, and ferments more rapidly, than that from the cattle yard. The best way is to mix, and apply the whole together. Where this is not done, the former should be applied to moist and cold soils, and the latter to lands which are warm and dry.

Under the management which I have suggested, in regard to yard manures, a farmer who winters twenty cattle, may annually make from 200 to 250 loads of manure, which will give a good dressing to ten or twelve acres of land in each year. And if a proper rotation of crops is adopted, he will be able to keep in good heart with it, and progressively to improve, sixty acres of tillage land, so that each portion shall be manured once during a rotation of five or six years. The data I have assumed, I consider about a fair medium of the stock and acres under tillage of our farmers. The result of this practice, if generally adopted, with a reasonable use of gypsum and clover, I venture to say, would be an increase of at least one fourth of the agricultural produce of the country.

I have taken up so much time in the examination of this subject, that it would be trespassing on your patience to go into an investigation of other manures and composts, of importance to good farming. I will therefore close this subject with a few general remarks; and take a cursory view of some other branches of husbandry, coming within the prescribed limits of this address.

Stiff clays may be much benefited by sand, lime, ashes, or any earth which tends to render them less cohesive, more retentive of moisture, and pervious to heat, air, and the roots of plants. Clay improves a sand soil, by rendering it more compact, and less liable to the effects of drought. Lime is also applied with advantage to pretty and boggy lands, when drained, and to soils abounding in brake and fern roots, &c. In the former it causes a decomposition of the vegetable matter, of which these lands contain an excess, and renders that which was inert and unsoluble, active food for vegetation. Green crops, whether of grass, grain or vegetables ploughed under, afford a good manure. Clover, on account of its tap roots, and the sod of old pasture or meadow grounds, are the best. If lime is spread on the old sod of clays, before it is ploughed under, it greatly facilitates decomposition, and improves the texture of the soil. Green crops should be thoroughly ploughed under, and, if practicable, a crop taken on the first ploughing. By cross ploughing before the sod is thoroughly rotted, the vegetable matter is exposed to the im-

Positive influence of the winds and sun, and its value materially impaired.

While various opinions continue to be entertained, as to the manner in which gypsum, or plaster of Paris, operates upon vegetation, the fact of its being a cheap and highly beneficial application, to certain crops, &c. on certain soils, is now universally admitted. Its effects upon the clovers are wonderful; and by the application of these alone, poor and exhausted soils have been made to produce abundant crops, and whole districts to denote their agricultural products. As a general rule, gypsum benefits all broad leaved plants, such as corn, potatoes, peas, and most of the grasses, but it is a question not satisfactorily solved, whether its application to small grains has any direct beneficial effect. It may be advantageously applied on all soils in this country, except on those that are habitually wet, and to stiff clay; and even on the latter of these I have known it to do well where the surface was unimpaired. On grasses, the best time to sow it is, when vegetation starts in the spring, at the rate of one bushel per acre, and the same quantity immediately after the hay is taken from the ground. A greater dressing seldom proves beneficial, and is sometimes of disservice. On corn and potatoes, it is generally applied to the growing plant; though, on the former, Judge Peters and Mr Taylor concur in recommending, as a preferable mode, that it be sown broadcast, at the rate of one bushel per acre, previous to the last ploughing.

[TO BE CONTINUED.]

Editorial Correspondence.

Broul Tailed Sheep—Luzerne, Orchard Grass, &c.

ELMONT, Nov. 13th, 1821.

DEAR SIR,

Your letter of the 9th affords to me both pleasure and pain. I am gratified by perceiving a revival of enquiry after the Tunis sheep; and mortified because I cannot tell you where to procure them. I had them in plenty, when I was so sensible of their superior value; and now when I have them not, I have many applications for them. There are some much deteriorated, in my little flock; and others in the near neighborhood I would not recommend. Mr Jefferys of North Carolina some years ago mentioned to me that in his vicinity there was a fine flock of the Tunis sheep; and probably in South Carolina they may have preserved the stock I sent them. What a friend to our country would he be who would import some of these valuable animals! All my efforts have been abortive, although I have made several attempts. With a reasonable spirit is reviving for propagating sheep, no breed would be more profitable, as the Farmer's sheep; the fleece being far superior to that of the common sheep, and the carcass far better than that of any other. Every thing I have said in relation to them, is literally true. The Merino madness overwhelmed all desire for other breeds; and even now the English sheep are most unwittingly preferred. The Barbary coast sheep are generally bad, or at least inferior. The mountain sheep must be procured.

I see in one of your papers an account of the 2d or 3d cutting of *Luzerne*, producing Pysalim in horses. This I know to be the case. But no such effect is produced by the Orchard grass; which I have cultivated for a period of

nearly 50 years; having been the first person who introduced it here. The price of the seed is most extravagant, and forbidding to its culture. Yet if a farmer would raise it for his own use, or even for sale, he would make more profit than wheat would afford. Thirty to fifty bushels are produced by a good acre. What is sold is half husk or chaff. A good bushel should weigh from 18 to 24 pounds—whereas that sold in the shops weighs 13, 14 and 15 only. I sow a bushel and an half per acre generally with my wheat or rye. In the winter or early spring I sow clover seed on the grain. These grasses are simultaneously fit for the scythe; and when the clover fails, the orchard grass continues in vigour as many years as you please. One dollar per bushel would be an ample price for it.

Yours very sincerely,

RICHARD PETERS.

J. S. SKINNER, Esq.

Near Newcastle, Delaware

SIR,

While searching for papers, I came across the enclosed—perhaps its publication in your Journal, may influence some enterprising merchant to attempt to procure these immense Lincoln sheep, not one of which I am convinced has ever been in the United States. The laws of England are indeed very rigid against the exportation of Rams and Ewes, but while that nation is ransacking the world to improve their stock, why should our hon be tied? We know the penalties and must guard against them.

They may very easily be taken to the Dutch coast, or to France, and re-shipped to this country.

Your obedient servant,

From the Democratic Press.

A Clothier.

HEAVY FLEECED SHEEP.

It is stated in "Arthur Young's *Lincolnshire*," that Mr. Graves, of that county, had a true Lincoln sheep, which clipped *twenty* three pounds of wool, the first year, and was sold in the London market, the following Christmas, weighing 40 lbs. the quarter.

This gentleman (Mr. Graves) sold in 1796, no less than 3568 tons of wool, weighing each 25 pounds, 140.945 pounds.

They feed often on oil cakes, often on turnips, and sometimes on a plant called the *Succ-thist*, which grows on rich lands. Nothing makes wool grow so fast as oil cake.

It is so stated that the sheep around Boston in Lincolnshire [Great Britain] yield, on an average, 14 pounds of wool per annum, fit for kerseys, blankets, carpet, shalloons, &c.

A lady of Spalding, in the same county, spun one pound of this wool into 168,000 yards or 95 miles of yarn.—The apprentices spin it to the length of 13,440 yards to the pound, or 8 miles. Hence we may learn the profits this country can make on the long woolled or heavy fleeced sheep by combing the wool and

making "Worsted" stuffs, such as shalloons, durans, moreens, bombazetts, &c.

They use a machine to comb wool called a "Big Ben."

The price of a fat Lincolnshire sheep after the third sheering, is 58s. to 72s. sterling, or 8 dollars and 44 cents to 16 dollars for the sheep.

The Lincoln sheep are preferred to any other by the English *Marsh Graziers* for hardiness and for profit.

Heavy sheep have been found to eat less in proportion to weight, on some experiments, than lighter sheep.

The Leicester breed of sheep in England yield in Lincolnshire $\frac{1}{2}$ to $\frac{3}{4}$ pounds of wool. It is finer than that of the Lincoln breed. The carcass is not so heavy; but so good lands are not required for this breed.

The Herefordshire, English sheep, yield very fine wool; but only 2 to 3 pounds to the fleece. The merino sheep yield finer and much more wool, and our dry climate particularly well suits this valuable breed.

Extraordinary Values.

WEIGHT—TREATMENT, &c.

East Windsor, October 22, 1821.

SIR,

Inclosed I send you the Connecticut Courant containing the reports of the several committees of our agricultural society. My father was the successful candidate for the best improved farm at the least expense.* My brother for the

*The viewing committee of the Hartford county Agricultural Society, respectfully report:

That in discharge of the duties assigned them by the society, they have examined during the present season, seven farms. Some remarks upon each of them, with the names of the competitors, will be offered to the society, in the order in which they were examined.

The farm of Mr. John Watson, of East Windsor, contains exclusive of woodland, about 170 acres. The greater part, when it came to the possession of the present owner, was of the very worst quality. In some places were sand mounds. In others a light and thin soil, elevated out one degree above the former; and in others considerable tracts scoured by springs or drenched by surface water, and producing bushes, ferns, and rushes. In reclaiming this farm, practical skill has been happily guided by scientific views, and the utility of systematic principles, in connection with that sagacity, which can perceive the proper time and manner of applying them, has been clearly exemplified. Strict calculations of profit and loss seem to have directed the proprietor in all his farming operations. No improvement, which would cost more than it would be worth, has been admitted; and few, which would be profitable, have been neglected. The fences upon this farm are excellent, the drainage effectual, and persevering efforts to eradicate noxious weeds and bushes have been very successful. This farm is, principally, though by no means exclusively, stocked with sheep; and their support is the leading object in the cultivation of the grounds.

best stud horse and for the best calf—the calf was from Mr. Williams' bull Denton, and was as fine an animal as I have ever seen. He has three calves from him. I have had three, but lost my two best at 12 weeks old.

I had a bull calf, weighed at one day old 97 pounds—at thirty days old 154 pounds—at 60 days 277 pounds—and at twelve weeks old after five days sickness, his greatest weight after his kidneys were out 199 pounds. I am not acquainted with the diseases of calves and have never heard of the death of calves of the age of mine, by sickness—one was kept upon the milk of one cow which he took from her twice a day, and had what hay he would eat, but no grain—the other was weaned, but took the milk of one cow, and after two months old a little meal. Yours with respect,

HENRY WATSON.

THE PUMP.

The common objection to the Pump is, that it makes the water taste of the wood; which I think a very material one, not only because it gives the water such a disagreeable taste, but it becomes a question whether it is entirely wholesome, and with me a very material one; because the disagreeable taste of the water in many instances prevents the use of it as freely as it should and otherwise would be. And again, it is an inducement for some, perhaps many, to mix somestimulus with it, in order to avoid the disagreeable taste of the wood, which in many cases, has produced the most ruinous consequence, drunkenness—the most dreadful evil that exists among men. I will now leave this subject for others to speculate on, and propose an improvement.

Make the first joint of any kind of stone that can be bored and worked so as to answer, whether it be one foot long or ten—it would be best no doubt if it could be got long enough to come above the standing water: for I presume that it is the wood standing in the water that gives the taste—not the water standing in the wood, or when this was drawn out the water would be pure. I think it probable that in many cases it is a long time, perhaps months before there is a change effected in the water that stood in the well, of course the wood standing in it must become very much affected—but if the joint of stone cannot be got long enough to come above the standing water, have cylinders made of potter's or stone ware, the stone would be best, and when the stock of wood is set in the stone joint, then enclose the wood with a joint of the cylinder. There should be a space of two or three inches all round between the cylinder and the wood, which fill in nicely with good clay mortar, then set on another joint of the cylinder, fill it in with the mortar, and so repeat the process until entirely above the standing water, and I believe this would be found to be a complete remedy.

If thee thinks this worth a place, and any should think it worth an experiment and would be so kind as to detail the result I shall be highly gratified—my part, I consider done.

Thine with much regard,

GIDEON DAVIS.

George-town, D. C. 11th mo. 1821.

Meridian Hill, Nov. 4th, 1821.

DEAR SIR,

I send you enclosed a pod of Cotton with the seed, from Manilla, which came in the Congress frigate.

I have never seen any thing of the Cotton kind so beautiful, and it is possible the cultivation of it may be introduced into this country to advantage.

Will you have the goodness to distribute the seed with such observations as to the quality of the cotton as you may think proper.*

D. PORTER.

J. S. Skinner, Esq.

* The cotton was distinguished by a softness to the touch resembling silk—but of short staple—The pod divides into two pieces and is in other respects very much like that of our silk-wood or wild cotton. The seed are in size and appearance like the *Ochre*-seed.—They have been sent to two eminent planters in the South.

From the London Farmer's Journal.

A MATCH OF SIXTY MILES A-DAY FOR TEN DAYS.

This undertaking was completed by Mr. Coleman, near Honiton, in Devonshire, on Thursday, the 30th ult.; and, considering the heat of the last few days, it stands equal to any thing on pedestrian record. Mr. Coleman bent his course through Huntingdon to Ferry-bridge, Yorkshire; and from thence across the country through Worcestershire, Oxfordshire, and into the Bath road at Devizes, from thence through the lower part of Somerset and Wiltshire, till the six hundred miles were completed as stated. It is extraordinary that he felt but little fatigue after the fourth day. He generally did from five to six miles an hour when travelling, which generally secured him rest. The wager was for 200 guineas only.

A young man named West, of Ash, near Wingham, in Kent, was backed, a few days ago, to run a quarter of a mile in one minute, and performed the task three seconds within the time. A few days before he run ten miles within the hour for a trifling wager, and did the first eight miles in forty-five minutes.

A man named Jonathan, was backed for ten guineas, to run ten miles within one hour on the same ground. He did the first two miles and a half in 14 minutes 50 seconds. He continued to do each mile within his time, and won the match by one minute and three seconds.

A match to trot two horses 30 miles in two hours, was decided on Tuesday on the Royston-road. A gentleman in the vicinity of Royston, of the name of Coddington, undertook to perform this task at two days' notice, and to ride 12 stone. He did 15 miles and a half in the first hour, and turned round twice agreeable to articles. The other horse did the other 14 miles and a half cleverly in 56 minutes. The rider had most of fatigue.

PIGEON MATCH.—A sweepstakes match took place on Monday, at Tottenham, between two elevens, at 15 birds each, 21 yards from the

trap. The stake was 150 guineas aside, and was decided as follow:

Mr. Herne	-	killed 14	Mr. Howe	-	killed 15
Gee	-	-	Jenkins	-	-
Barleman	-	-	Half	-	-
Jones	-	-	Captain Smith	-	-
Coddington	-	-	Jones	-	-
Mellish	-	-	Mr. R. Hall	-	-
Armstrong	-	-	Marshall	-	-
Smith	-	-	Mellish	-	-
Kent	-	-	Hart	-	-
Forrest	-	-	Coffin	-	-
Frost	-	-	Maule	-	-
			112		115

The winners were from Herts and Bucks chiefly, and losers from Oxon and Bedfordshire. The stake was shot for amongst the winners, on the following day, in four prizes of 50, 40, 35, and 25, the worst shots receiving dead birds to start with. The prizes were as follows:

Dead Birds		Dead Birds			
Killed.	allowed.	Killed.	allowed.		
Mr. Jones	14	0	Mr. Coffin	10	1
Mellish	13	1	Howe	10	0
Smith	13	0	Marshall	9	1
Jenkins	11	0	Hall	8	0
Hall	10	0	Hart	8	2
Maule	10	2			

Mr. Howe killed his whole 15 birds on the preceding day. On shooting off the tie for the second prize, Mr. Mellish won it by killing four birds successively.

GROUND SHOOTING.—Bumper Castle, the favourite shooting-box of the late Marquis of Granby, and the present Duke of Rutland, has this year assumed its original appearance, with abundant harvest for the sportsman. The present occupiers of these Moors, &c. (John Chaworth, Esq. and Edmund Torton, Esq.) began their deadly warfare on the 13th of August, and on the 27th no less than six hundred and sixty-four birds had been bagged by these two gentlemen.

Mr. W. Friend, of Willington, gamekeeper to Charles Lyon, Esq. has now in his possession a partridge, which, far from resembling the generality of that species, is completely yellow. It is kept, having become quite domesticated, in a cage with one of the usual colour. It was caught about a month ago, and has since been seen by many sportsmen, by all of whom it has been greatly admired for its singularity.

The Rattle Snake.

TO THE EDITOR OF THE GEORGIAN.

Mr Robertson—I have recently perused an article in the National Intelligencer, purporting to be a communication from J. Ramsay, M. D. to the President and Members of the New Hampshire Medical Society. In this communication the writer gives a description of the effects of the bite of a rattle-snake, as experienced by himself; but as these effects differ in many particulars from those which I have witnessed, I am unwilling it should remain before the public without such remarks, as I think are necessary to elicit the truth; in doing this, I shall speak from my own observations, and go no further than the interest of the subject demands.

Dr. R. states, that "he felt no pain on the

infliction of the blow?" but that, on looking to his finger where he had been struck, an orifice was discovered to bleed copiously; that he observed about an inch from the bleeding point, a white speck, exactly resembling the puncture from a nettle; that in a few days, the morbid symptoms seemed to subside; and that every Wednesday, (the day on which the wound was received,) for four weeks, a periodical relapse took place, which lasted two days, &c.

Whether the Doctor wishes to play upon the credulity of his readers, or was wounded by some other snake, I know not, but I have seen and heard of many cases of the bite of a rattle snake, and the effects were invariably the same, and different from those above stated. Unless proper antidotes were applied, death always followed in twelve hours. When these were used, the most speedy cure always followed, and no periodical return of the symptoms ever was observed. The following case, which I detail, with the treatment, came within my own immediate observation:

A girl, about 10 years of age, trod upon, and was bit by a rattle-snake on the top of the foot. She complained immediately of *extreme pain*. Upon removing her stocking, (which could not have been more than three minutes after the infliction of the wound,) four small punctures appeared on the skin, which were filled with a thick slimy substance, but no blood, and the skin swelled to the height of half an inch, the swelling increased rapidly, and she stated that she could feel the pain slowly advancing up the leg. Her foot was instantly covered with earth, about three inches deep, and water poured over it; a bandage was also tied round the leg; but the former became so painful an application, that the earth was removed. She complained of heat, and drank freely of water; but did not perspire until 20 minutes had elapsed from the infliction of the wound. A portion of the herb called by the Indians the *rattle-snake's master-piece*,* was then procured, the root of which was applied to the wound and given internally, which took effect in about thirty minutes, and was followed by a languor and sleep. She remained in this state nearly three hours, and arose almost free from pain, and immediately asked for more of the preparation of the above mentioned root. She rested well the following night, and the next morning complained of nothing but a small degree of soreness in her foot and leg. The above application was continued till the fourth day, when she was completely recovered. I afterwards saw her in 1816, when she was 19 years of age, and she had never, as she informed me, felt the least pain or relapse since her recovery on the fourth day after the occurrence.

* The "Rattle-Snake's Master-Piece" (as it is called by the Indians) is a plant common in the upper counties of Georgia. It has a leaf resembling, in shape and colour, that of the aloë, except the edge, which is smooth, and about three inches long, and when broken, a slimy substance adheres to each piece until an inch apart. It has one root about the size of a man's thumb, to which the leaves, four or five in number, are attached, and from which there are four smaller roots which shoot horizontally. The principal root is not more than one inch in length, and perfectly blunt at the extremity.

A favorite dog, severely bitten, and unable to move more than 100 yards, expressed a sensation of severe pain, and was cured by the same root, in three days, and never experienced any return of the disease.

Every one in the least acquainted with the rattle-snake, knows that the wound is given with from two to four fangs, which are curved, and by which the venom is ejected from a bag situated in the jaw. The rattle-snake never bites till attacked, and will rather shun than seek a conflict. Providence has provided that in every situation where the rattle-snake is found, an antidote is found with it. To this the reptile, after having given the bite, flies; for the same blow which inflicts the deadly wound, also creates in the snake a sickness, for which it immediately seeks relief in the plant. At times, however, they are known to bite without this effect being produced; but when the venom is ejected, it invariably follows.

A GEORGIAN.

From the Providence R. I. Journal.

According to the most judicious calculations, the amount of raw cotton consumed by the mills which receive their supplies from the town of Providence and return their goods thither is about 500 bales a week, or nearly at the rate of 31,000 annually. If the whole mill manufacture of cotton in the United States, be four times as much, which is not improbable, the value of the raw cotton worked up in the domestic market, at 50 dollars a bale, is \$6,200,000, or one quarter of that of the whole crop. Is it of no consequence to the southern planting interest, that this home market for one of its great staples should be protected and extended? By increasing the duties on fine goods, many mills which are now idle, in different parts of the country, would be soon employed in the finer manufactures, and thus greatly increase the call for sea-island cottons. When once established in the manufacture of fine goods, they would be enabled, like those which in manufacture coarse goods, to undersell the foreign manufactures.

From the New York Journal.

NATIONAL INDUSTRY.

Matthew Carey, Esq. of Philadelphia, has issued proposals for publishing by subscription, a collection of "Essays on the necessity, duties, and advantages of affording adequate legislative protection to domestic manufactures, and on the pernicious consequences of the contrary policy, as exemplified in Spain, Portugal, the United States, &c." These essays contain a great mass of statistical information and facts relating to political economy and the policy of nations; and a collection of the maxims of the greatest statesmen that have appeared on the political theatre of Europe, and in our own country. They relate to agriculture, manufactures, and commerce, and will be found well worthy the attention of those who desire information upon these subjects. The author has devoted much time to the great questions he discusses, and has evinced an ardent attachment to the cause of American manufactures, in the confident belief that in their establishment on a permanent

basis, the safety, prosperity, and real independence of the nation are intimately connected. The work will contain above 500 pages, and be furnished to subscribers at 3 dollars bound, and 2 dollars 50 cts. in boards.

Subscriptions received at this office.

(FROM THE LONDON FARMER'S JOURNAL.)

AN ACCOUNT

Of the Quantity of Sheep and Lamb Wool imported into Great Britain, between the 5th January, 1800, and the 5th January, 1821, distinguishing the amount in each year.

Years ending 5th Jan.	Produce of from Foreign countries.		Total.
	Ireland, Isles of Guernsey, Jersey, Man.		
	lb.	lb.	lb.
1801—	8,699,384	5,900	8,613,284
1802—	7,369,993	17,114	7,387,107
1803—	7,622,970	78,548	7,701,518
1804—	5,889,834	115,958	6,005,792
1805—	7,909,551	210,042	8,151,593
1806—	8,079,944	462,012	8,541,976
1807—	6,763,622	370,371	7,334,993
1808—	11,473,561	295,265	11,768,826
1809—	2,279,936	73,767	2,353,725
1810—	6,782,614	63,119	6,845,933
1811—	10,931,667	4,537	10,936,224
1812—	4,732,646	7,326	4,739,972
1813—	6,992,044	22,433	7,014,917
1814—	R. cords destroyed by Fire.		
1815—	15,490,134	2,233,333	15,712,517
1816—	13,634,520	1,357,183	14,991,705
1817—	7,517,447	600,377	8,117,884
1818—	14,051,788	664,055	14,715,843
1819—	24,720,139	1,085,347	26,405,486
1820—	16,094,999	95,344	16,190,343
1821—	9,770,103	273,613	10,043,746

Wool.—The demand for English wools generally is rather languid for this period of the year; the staplers and manufacturers only purchasing to supply their regular demand; it is however, very probable, as the season advances that the prices of all sorts will gradually get up. The clip of the country is known to be generally very short, owing to the cold and protracted summer previous to the shearing, and the short supply of food last winter. We should think that the average defalcation in weight is from ten to fifteen per cent. from last year, and of course much greater from the year 1819, in which year there was the heaviest clip, ever remembered. The long wools this year are very weak in the staple, and the short wools smaller in the hair than usual.

By a statement from the Board of Excise, ordered by the House of Commons to be printed in May last, it appears that the increase of hop plantations, in the parishes or districts of Sussex, for the last fourteen years, has been from about 5,400 to 9,500 acres.—From the same source we find that the number of acres of land under hop cultivation, in the Canterbury district, was, in 1807, 6151 acres; in 1820, 8,963 acres.

On adapting Plants to the Soil, and not the Soil to the Plants.

Vegetables will not grow in pure earth, or pure water; some plants are so organized as to require only mechanical support from the soil, (straw), their nourishment from the atmosphere by means of their leaves; whilst others,

from their roots, depend in a greater degree on the soil for their support. Although many plants will grow in different soils, yet they have all their favourite ground; and it is more easy to accommodate the plant to the soil, than to adapt the soil to the plant. By knowing, therefore, what sort of plant the farmer is going to put in, he may of course be regulated with respect to the quantity and species of manure required, the aspect wanted, and the degree of humidity and dryness requisite for the plant. All plants can be originally from a peculiar earth; either from clay, sand, gravel, chalk, or loams formed from a mixture of some of these, or from a wet or dry soil; and although many plants will grow indifferently in several species of earth, yet they have all their favourite ground,—that which they evidently prefer. Now to make the soil fit for the plant is certainly a very expensive thing; but to adapt the plant to the soil is not only an easy expeditious mode, but one which requires infinitely less assistance in dressing, labour, seed, and care of every kind. It is true that all cultivated plants demand some manure, because nature gives not enough salt and oil, in any earth, to do without some assistance of this kind; but the plant that is natural to the soil requires infinitely less than that which is adverse to it; and may therefore be cultivated at a quarter of the expense. Now nature is so bountiful, that there is scarce a plant necessary to the food of man and animals, that, if we choose to seek it with care, has not one peculiar sort calculated for every soil. *Clovers* have so great a variety, that there are species adapted to every soil; and sowing them out of the kind of soil to which they are congenial is nugatory and ruinous. And this is often the occasion why they are said to be short-lived, and to fail. It is so with *wheat*, and all other agricultural plants. Nature has been equally bountiful in most other plants peculiarly adapted to agriculture; and in which there are quite as many species fitted for poor land, as for rich ones; and if planted in their own soils, give an infinitely greater return, and are not subject to those dreadful disorders but too common to plants placed in improper grounds. On examining extraordinary crop, it has been actually proved that they were owing to putting the plant into its congenial soil; and where crops have been bad, though manure and pains were not spared, the plant has been found to have been placed in a soil unnatural to it. A plant accustomed to poor soil, placed in a good one, *rots*; while the one that prefers a rich loam, is starved in a poor one. Manuring highly does not alter the nature of things; and is often the cause of innumerable failures. *Botanists*, who attempt bringing foreign plants, often fail, from the omission of placing the plant in the kind of earth in which it naturally grew. *Pears* and *vetches* will grow luxuriantly, where other plants entirely fail. *Trees* planted in too rich soil, and particularly in that artificially so made, and especially with dung, most commonly fail ultimately, though at first they may appear vigorous. And thus it will be with all plants endeavoured to be forced out of their natural soil. Farmers need not be pressed *Botanists* to enable them to judge for themselves.

There are but ten or twelve plants used in agriculture; and of each of these there are varieties, calculated for every kind of soil a farmer can occupy. It will, therefore, be easy to suit them respectively to his land; and thereby save the fruitless expense, and unavailing toil of forcing, against nature, a plant to grow out of the kind of soil for which it was, in its habits and organization, originally formed.

AN ACCOUNT

Of a remarkable Tree in the state of Ohio.

"On the land of Abraham Miller, in the township of Seal, county of Scioto, in this state, there is a forked hollowed sycamore tree, which measures on the inside twenty one feet in diameter, and more than ninety feet in circumference, spreading from the base upwards, so that at the height of five feet it measures only 42 feet. The opening of the cavity at the bottom is 10 feet wide, and 7 at the height of five feet, terminating at the height of 93 feet. The fork is about 8 feet from the ground—One of the branches is dead, and broken off about 20 feet high; the other is green and thrifty.

The spacious cavity attracted the attention of the people in the neighborhood; 14 of whom assembled, on the 5th day of June, 1808, on the spot, and 13 of them advanced on horseback in to the trunk, and at the same time, sat there with perfect ease. The other, being on a salt fish horse, did not venture in; but there was room for two more to be perfectly secure from a falling shower of rain."

POETRY.

FROM THE ALBANY PLOUGH BOY.

THE FARMER.

All the toils of summer o'er,
Peace and plenty round his door,
Who on earth so blest and free,
As the Farmer!—Like the bee,
All the sweets of life are his—
Large and full his cup of bliss—
Who can envy tomes to kings,
When the Plough such treasure brings.

See his works with profit crown'd—
Barns, with hay stacks huddled round,
Like a family under fear
Draws within a circle near—
Stately steeds and cattle neat,
Cribbs of corn and mows of wheat.
Thickly crowded is his fold—
Hard less sheep and lambs behold,
Like the Christian 'midst the din
Of a noisy world of sin—
Fowl copious cackling sound,
Pours'd with one foot on the ground,
Meet their master as he comes,
Cluck their wants, and shake their plumes.
When at midnight all is still
Hear his geese with voices shrill,
At the silhest thought of harm,
Raise the to-m of alarm;
While from the barn yard round,
Echoes back the streaming sound:

See the lofty turkey cock,
Monarch of the feather'd flock,
Like a haughty potentate,
Strutting round the yard of state,
Filled with anger fierce and dread,
At the sight of daring red,
Swell'd and gobbling as he goes,
Dire destruction on his bos:
But, like other tyrants, he
Soon will lose his head, you'll see.

Ere the morn unlocks her doors,
Whence a stream of day-light pours,
Ere the bacchanalian goes
From his cups to seek repose,
Here the game cock's clarion peal,
Breaking sleep's mysterious seal,
Like a summons from the skies,
Calling mortals to arise:
While each faithful sentinel
Answers aloud that "all is well."
Industry obeys the call,
Rises, hastens to the stall,
And replenishes with food,
All his stock and all his brood,
Who around him gladly fly
To a bountiful supply.
Back the husbandman returns,
Where his fire now briskly burns,
Where the partner of his joys—
Rosy girls and healthy boys,
Kneeling with him round the chairs,
Send to heaven their rapt prayers:
Thus, the year with him b. goes,
Thus the race to heaven he wins.

THE FARMER.

BALTIMORE, FRIDAY, NOVEMBER 23, 1821.

PRICES CURRENT.

Flour from the wagon sailing this morning (Thursday) for \$6 50—Wheat, from do. 15 cts including br.—Red Wheat, 1 to a 4—White, do. 14 5 a 14 7—Corn, 65 a 65 1/2—Oats, do. 65 a 66—Rye, 65 a 68—Oats, 4 a 4 3/4—Other articles same as last report.
Virginia Tobacco—No sales.—Maryland, do. very dull.

General Agency Office—

AND AGENT IN NEW YORK FOR THE
AMERICAN FARMER.

WILLIAM A. COLMAN,

At No. 45, William-Street, New-York,

Is willing to undertake to collect debts in any part of the country—to procure subscribers to new works—to purchase and sell goods—and generally, to transact every kind of business which may be intrusted to him. He has been for many years extensively engaged to the Agency business, and he flatters himself that, as heretofore, it will be in his power to give general satisfaction. Any commands to the way of his profession, addressed to him as above, will meet with personal and prompt attention.

In addition to the Agency already received from many of the Editors of papers in this country, he has authority from J. S. SKINNER, to receive subscriptions to the AMERICAN FARMER—Specimens of this work have been sent at his office, for the inspection of those who may wish to subscribe. The third Edition of the first and second volumes is now re-printing, and will be completed in a few weeks—Copies of which may then be had as above.

ALDERNEY.

A remarkably fine Alderney Female Calf, four weeks old, warranting genuine, and from the nearest Cow imported by Mr. Creighton, is offered for sale.

Apply to the
EDITOR.

YOUNG MULES.

FOR SALE, Six Young Mules—five of them three years old; the other two years old. They are well grown, and perfectly sound—and will be sold low on application to the Editor of this paper.

A M E R I C A N F A R M E R.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua ex bona norint
Agricolae." . . . VINO.

VOL. III.

BALTIMORE, FRIDAY, NOVEMBER 30, 1821.

NUM. 36.

AGRICULTURE.

VIRGINIA HUSBANDRY.

Observations thereon by the Editor of the Farmer, during an excursion through some counties of that State, in the summer of 1820.

TOBACCO.

Near to Charlottesville, in Albemarle county of Virginia on the farm of one amongst the best Planters and most intelligent and valuable citizens of that state, I witnessed the infinite pains bestowed on the management of Tobacco, and the curing and preserving the fodder of Indian corn—in comparison with the practice of my own state in the same branches of Husbandry. I fortunately prevailed on him to give me the following sketch on the subject of Tobacco; and as the time approaches when, according to the suggestions of my worthy friend, the provident Planter may advantageously think of preparing his Tobacco beds, this memoir ought not to be longer delayed, it is therefore now submitted without further introduction.—It is in my judgment one of the most valuable papers which has yet appeared in this Journal.

Notes on the Cultivation and Management OF TOBACCO,

From the plant bed to the prize—according to the most approved practices in Albemarle and the adjacent counties in Virginia.

1st. OF THE CHOICE OF LAND FOR THE PLANT-BEDS AND MODE OF PREPARING IT.

A rich virgin loam with a slight mixture of sand is ascertained to be the best soil for raising tobacco plants. Such spots are indicated by the growth of alder and hazle bushes in bottoms and on the margin of small streams, and if the situation has the command of water for irrigation it is on that account to be preferred—the spot being selected, the first operation is to burn it with a strong fire. For this purpose the growth of every kind is cut off, (not grubbed up) and the whole surface raked very clean. The burning should be done before Christmas, or as soon after as the weather will permit—and if done thus early it cannot be well too heavy, even bringing the soil to a hard cake.—The wonderful fertility imparted to soil by fire, has of late years been clearly proved and developed by various experiments in this and other countries, but judging from long established practice, we suppose it is a fact that has been long known to tobacco planters—that this fertility is imparted by the fire, and to ways dependent upon the ashes left by the process is clearly proved from the fact, that the same results will ensue if the ashes are swept off entirely clean. Or take another piece of ground of equal quality, cover it with a much or more ashes, and prepare it in every respect similar

except burning, and plants cannot be raised in it. Hence the necessity and propriety of regular and uniform burning, the want of which is always manifested by a diminutive yellow and sickly growth of plants in those spots not sufficiently acted on by the fire.

After the ground becomes cool from burning the whole surface should be swept with a coarse twig broom to take out the coals.—In this operation some of the ashes will be removed but that is of no consequence—it should then be broken up about two inches deep with grubbing hoes, in which operation and in repeated chopings afterwards with hilling hoes, all roots will be cut and finally got out with a fine iron tooth rake which will leave the ground in proper order to receive the seed.

The most approved time for sowing is about the first of February, the beds previously prepared being suffered to lie and mellow by the frost and snows to that time. But it will do very well to burn and sow after that time, as late as the first of March, taking care not to have the heat so great.—The quantity of seed is as much as can be taken up in a common table spoon* for 100 square yards, and that in proportion. This quantity of seed should be mixed with about one gallon of clean ashes, and half that quantity of plaister of paris, and the whole well incorporated, and then strewn uniformly over the bed at two operations, crossing at right angles to ensure regularity. Cabbage seed for early planting, Tomatoe Celery, and Lettuce seed may be sowed in small quantities with the Tobacco seed, without material injury to the growth of the plants. After sowing the seed the ground is immediately trodden over closely with the feet, and covered thick with naked brush. If the frost is severe from this time it is common to take off the brush some time in the month of March, before the plants appear, and tread the bed again, and at the same time give the ground a slight dressing of manure. The dung of fowls of all sorts, is sought after for this purpose, which being beaten, is sifted over the bed through a coarse basket or riddle. The brush is then restored, and not finally removed until the leaves of the plants are half an inch in diameter; when the dressing of manure is again applied, taking care to wait the approach of rain for that purpose. Any grass or weeds that may have sprung up in the mean time are carefully picked out.—In dry seasons, if the situation admits of it, the bed must be irrigated by training a small stream of water around the edge of it. If not it should

* This quantity of plant bed is generally considered under good circumstances as sufficient to set ten thousand hills in good time. But the prudent planter taking into consideration the casualties of fly, drought, &c. will do well to make a larger allowance. We know of no certain remedy or antidote against the fly which destroy the early plants.

be watered every evening with a common watering pot, or pine bushes dipped in water and hooked over the bed until sufficient moisture is obtained.

Under a careful observance of this management, the plants according as the seasons have been favorable or not, will be fit to transplant from the fifteenth of May to the tenth of June. A planter thinks himself lucky if he can get his crop pitched by the tenth of June. After that, the seasons are uncertain from the heat of the weather, and the chances of success for a crop precarious; though it has been known to succeed when planted the middle of July.

Of the preparation of the Land, and cultivation of the Crop.

The best Tobacco is made upon new or fresh land. It is rare to make more than three successive crops upon the same ground, of which the second is the best, the 1st and 3d being about equal. But it is more common to make only two. The new land, after all the timber and brush is removed, and the surface very cleanly raked is twice closely coultured as deep as two horses or oxen can pull. After this, hands with grubbing hoes pass regularly over the whole ground, and take up all the loose roots that have been broken by the coultur which are heaped and burnt, or removed. One and sometimes two more coulturings are then given, and the same operation repeated with the grubbing hoes, which leaves the land in proper order to be hilled—this is universally done in straight rows at the distance of $3\frac{1}{2}$ feet apart, giving the same distance as near as the eye will permit the other way—in fresh land, that is to say for the second and third crop, the line of the original row, and even the locality of each hill should be preserved. After passing the coultur two or three times between each row, the hills should be made in the same place, the remains of the stalk and roots of the old plant being first removed. It is supposed, from the excess of nitrous particles contained in tobacco, above any other plant, that the partial decomposition of this stubble during the winter, imparts a degree of fertility to the spot which should not be lost by the diffusion and exposure of a general ploughing. It is most advisable too, that the hilling of new and fresh land, should be done as early in the spring as possible, say three or four weeks before planting. This affords time for the hill to settle to a proper consistence and presents a more extended surface to be acted on by atmospheric influence, which perhaps is greater in the spring months than at any other season of the year.

On the bottom land of our rivers there are extensive alluvial flats, that bear successive crops of tobacco for many years, and some planters resort to highly manured spots conveniently situated upon high land. But in gene-

ral it is considered had economy to manure land for tobacco, both because the quantity required for that crop is greater than for any other, and because the quality of the product, as well as that made on low grounds, is coarser in fibre and less marketable.—The preparation of such land however is the same as that of new ground, except that the large plough and harrow are substituted for the coultter and grubbing hoe, and the hilling may be a little longer delayed.

If the seasons have been favorable, and the plant beds duly attended to as before observed, the plants will be ready to set out from the 15th to the last of May. It is most common to wait for a rain or season as we call it, to perform this operation, in which case the hills must be previously cut off about four inches above their base; but in early planting it is quite safe to proceed without a season, provided it is done in the evening, and the hills cut off at the same time. It is universally admitted that a moderate season is better than a very wet one; and that is considered the best, in which the earth does not entirely loose its friability, but at the same time will bear to be compressed closely about the roots of the plant without danger of becoming hard or baked. Under the most favorable circumstances, however, some plants will fail or perish, and therefore the ground must be gone over after every rain until the last of June, to replant the missing hills. It is not important here to describe the mere cultivation of the crop as it respects tillage, it being only necessary as in the case of all other plants to keep the earth light and free from weeds and grass. This is generally done by two weeding, first by scraping a little earth and all the young grass from the plants and then in a short time restoring the same earth, and as much more as will make a considerable hill around each. In old land, and that free from stumps, the single horse shovel plough is used with great advantage as an auxiliary to the hoe.

When the plants attain a proper size, which observation and experience will readily point out, they are to be primed and topped. The priming is merely stripping off 4 or 5 leaves at the bottom, leaving about a hand's breadth between the first leaf and the top of the hill. Topping is simply taking out the bud with the finger and thumb nails, leaving the necessary number of leaves, which in general is not more than eight, though the first topping may be to 9 or 10 leaves to make it ripen more uniformly, and bring the crop into the house more together. For the same reason, the late plants are not topped so many, falling from eight by degrees as the season expires, down to six and five. A little practice, and slight attention to the manner in which the leaves grow from the stalk, will soon enable a person to perform this operation with great dexterity and dispatch, without counting the leaves. All that is requisite after this until the plant is fit to cut is to keep it from being eaten by the worms, and to pull off the suckers that grow out at the junction of the leaves to the stalk. These suckers put forth only twice at the leaves, but after that indefinitely and continually from the root, and

it is thought injudicious ever to let them grow more than a week old, for besides absorbing the nutriment necessary to push forward, and increase the size and thickness of the leaf, the breaking them off when of a large size makes so great a wound as greatly to injure the after growth of the plant. In general about three months is requisite to perfect the growth of tobacco, from planting to cutting.

Of the diseases, and casualties to which it is subject; and its tendency to exhaust land.—Tobacco is subject to some diseases, and liable to be injured by more casualties and accidents than any other crop. That growing upon new or fresh high land is seldom injured by any other disease than the *Spot* or *Firing*, which is the effect of very moist succeeded by very hot weather. For this we know of no remedy or antidote. Tobacco growing upon old land particularly upon low flats, besides being more subject to *Spot*, is liable to a disease we call the *Hollow Stalk*, which is an entire decay and rottenness of the inside or pith, terminating gradually in the decay, and final dropping off of the leaves. This disease is sometimes produced by the wounds caused by pulling off overgrown suckers, thereby admitting too great an absorption of water into the stalk through the wound.—In land not completely drained, the plants are sometimes apt to take a diminutive growth, sending forth numerous long, narrow leaves, very thickly set on the stalk. This is called Walloon tobacco, and is good for nothing. As there is no cure for these diseases when they exist, we can only attend to their prevention. This will at once be pointed out by a knowledge of the cause, which is too much wet, and indicates the necessity of complete and thorough draining before the crop is planted. It may not be amiss here to mention that tobacco is more injured than any other crop by ploughing or hoeing the ground when it is too wet, and to express a general caution on that head.

The accidents, by which tobacco is often injured and destroyed, are high winds, heavy heating rains, hail storms and two kinds of worm, the ground or cut worm, and the large green horn worm. High winds, besides breaking off the leaves and thereby occasioning a great loss, are apt to turn them over. The plant unlike most others, possesses no power to restore the leaves to their proper position, which must shortly and carefully be done by hand, otherwise the part inverted will gradually perish and moulder away. Those who have studied the anatomy of plants can tell us the cause of this, as well as, why nature has denied to tobacco the faculty of restoring its leaves to their proper position.—The ground worm, the same which is sometimes so fatal to corn, is ascertained to be the Larve of the common black bug found in great numbers under wheat shocks, &c. This worm is seldom or never found in new land, but abounds in old or manured ground—and in some years I have seen them so numerous, as to have from 40 to 50 taken out of one hill in a morning. The alternatives are either to abandon the crop, or to go over the ground every morning, when they can be found at or near the surface, and destroy them. The miss-

ing hills to be regularly replanted.—The Horn Worm is produced from a large, clumsy, grey coloured fly commonly seen late in the evening sucking the flowers of the *Stramonium* or *thorn apple*, commonly called here the *James-town weed*. The flies deposit their eggs in the night on the tobacco, and all other narcotic plants indiscriminately, as Irish potatoes, Tomatoes, &c. In 24 or 36 hours the eggs hatch a small worm which immediately begins to feed on the leaf and grows rapidly. Great care should be taken to destroy them while young. Turkeys and Guinea fowls are great auxiliaries in this business, but the evil might be greatly lessened if the flies were destroyed, which can easily be done in the night by a person walking over the ground with a torch and a light paddle.—They will approach the light and can easily be killed. In this way I have known a hundred killed in one field in the course of an hour.

Tobacco has been reproached as the cause of the general exhausted condition of our lands, of the slow paced improvement in the Virgin system of agriculture; in short as the bane of all good husbandry. This stigma is, I am persuaded, in a great measure unwarranted. It is true, that like Indian corn, from the frequent and high degree of tillage it requires throughout the summer, it exposes the ground to be washed by hard rains, and evaporated by the hot sun; but the plant in itself is less an exhauster than corn or wheat. A proof of this is to be found in the superior growth and perfection to which any crop will arrive when grown after tobacco, than after any thing else, not excepting clover that has been ploughed in. Perhaps this may be accounted for from the facts, 1st. That the roots and stubble of tobacco left on the ground are more in quantity, and contain more of the essential qualities of manure than those of any other plant. 2d. The plant itself while growing feeds more from the atmosphere than any other, and 3dly. It is not suffered to go to seed, the process in all vegetation which is supposed to make the greatest draft on the fertility of the earth.—Neither is the culture of tobacco incompatible with a proper rotation of crops, and an improved system of husbandry, for we find as extensive and as successful efforts at improvement made in the tobacco region, and by tobacco makers, as in any other section of our state.

Of the Cutting, Curing and Housing.

We have now arrived at the most difficult and critical stages of the whole process, every operation from this time until the plant is cured, requiring great attention and care, as well as skill and nicety of judgment in the execution. And hence a great contrariety of practice in some of the minutæ prevails, according to the superior skill and ability of different planters.

It is difficult to convey an idea of ripe tobacco by description. It can only be learnt by observation and experience. In general its maturity is indicated by the top leaves of the plant turning down and often touching the ground, becoming curled with yellow spots interspersed on their surface, looking glossy and shining, with an entire loss of fur, a manifest increase of thickness in the substance of the leaves

which when pinched in a fold between the finger and thumb will crack or split with ease. But the most experienced planters acknowledge that they are more apt to err in cutting their tobacco too soon, than in deferring it too long. As a proof of this, take two plants growing side by side of equal size and appearance in every respect, and both apparently ripe—cut one and weigh it both green and when cured: let the other stand a week longer, and when weighed like the first the difference in favour of the latter will be astonishing. If it be asked, why we do not avail ourselves of the advantage to be derived from thus deferring the operation? It may be answered, as I have before observed, that tobacco while standing is liable to be injured and destroyed by more accidents than any other plant, such as hail storms, heavy rains, high winds, the depredations of worms, the growth of suckers from the root which abstract greatly from the weight and thickness of the leaves, if suffered to grow, and which it is not always convenient to pull off. Besides this, the season of cutting tobacco is a very busy one to the planter, and too much work would accumulate on his hands by deferring it to the last moment. For these reasons it is considered most prudent to cut out the plants as soon as they will make good tobacco; in which case the loss in the aggregate amount of crop, is balanced by avoiding the risk of accidents, and being able to bestow more care and attention to what remains.

The cutters go over the ground by rows, each taking two at a time, and the plants they cut are laid in the intermediate row between them. This facilitates the picking up, as the cutting of four rows is thereby placed in one. The stalk of the plant to be cut is first split down with the knife about six inches, and after being cut off just below the bottom leaf, is inverted and laid upon the ground, to fall and become pliant for handling. The splitting of the stalk is important, both for the convenience of hanging it on racks and accelerating the cure of the plant. To those unused to the culture and management of tobacco, it will be almost incredible to learn how soon it will *sun-burn*, as we call it, after being cut and turned over on the ground. This is effected by the hot rays of the sun, piercing and penetrating the tender parts of the leaves, and is manifested by the parts affected, turning white and soon becoming dry and crisp, and when cured, of a dark green colour, without possessing any of the strength or qualities of tobacco. In very dry, hot weather, sun-burning often takes place before a large plant falls sufficiently to be handled without breaking off the leaves; and for this reason the cutting in such weather, should always be made early in the morning, and not proceed after ten o'clock. Sometimes it is done in the evening when there is no prospect of rain, by which the picking up may be accomplished earlier the next morning, and with less risk of burning. As soon as the plants fall sufficiently to handle without breaking off the leaves, they are *hand-faulted*, as we call it; that is, they are picked up, and three or four or five plants are laid together, with their tails from the sun, and the stalks inclined and somewhat elevated against the sides of some of the hills. The pickers up,

after going through this ground, return and turn over each handfull, that both sides of the plants may receive the benefit of the sun, and not be burnt; and this operation is again repeated, if by this time the tobacco is not pliant enough to be put in *shocks*. This is putting an indefinite number of handfulls together, the stalks in an erect position, forming a sort of circle of any diameter, from two to six feet or more, at convenient distances in the field; and these shocks should be immediately and effectually covered with green bushes, or something else, previously in place, for the purpose to exclude the rays of the sun.

The next operation (after the heat of the sun has declined) is to remove the tobacco to the house or scaffold, and hanging the plants on sticks $\frac{1}{2}$ feet long, and about one inch square. The common pine affords the best timber for this purpose, which will rise straight and with ease. From 10 to 12 plants, according to size, may be hung on each stick, the width of two fingers to be left between each plant. The scaffolds are raised 4 or 5 feet from the ground, and the poles to receive the sticks are placed four feet apart, and are made to range east and west, so that the sticks will be north and south, to give both sides an equal benefit from the sun. The tobacco is commonly removed from the field to the house or scaffold upon the shoulders of the labourers, carefully put on and taken off to avoid bruising; but if the distance is great, carts are used, greater care being necessary to avoid bruising. This is considered so important that some judicious planters make temporary scaffolds in the field, preferring the risk of injury from a smart rain, to that of bruising by moving it far in a green state.

There are two modes of curing tobacco. One in the house altogether by fire: the other by the sun on scaffolds. The first is esteemed the best and most effectual, but it is attended with great risk. Our houses are generally four sided pens, 20 feet square, built of round poles, and about 12 feet pitch. The joists are placed four feet apart, the rafters immediately over them, having beams corresponding with the joists, three feet perpendicular from each other, so as to afford ranges or tiers for the tobacco up to the crown; and the same tiers are fixed below the joists and at the same distance by extending poles across the house between the logs of the pen. The house is covered tightly with pine boards, and if it is intended to cure by fire, the openings between the logs should be closed to prevent the escape of heat. Such a sized house will cure from 2 to 3000 weight, according to the quality of the tobacco.—If it be decided to cure by fire, the tobacco is carried immediately from the field to the house, hung on sticks as before described, and these stacks crowded as close together on the tiers as they can possibly be, so as to exclude all air from the tobacco. It remains in this situation, until the leaves of the plants become yellow or of the colour of hickory leaves just before they fall. This will generally happen in four or five days, when the stacks must be spread and placed at their proper distance apart in the house. About six or seven inches is the proper distance, or any other that will prevent the plants on different

sticks touching each other. A moderate heat which is gradually increased to a very strong one, is then applied, by making different ranges of fires throughout the house—and that wood is preferred and sought for, which will make the greatest heat with the least blaze and smoke. The fires must be continually kept up until the curing is effected, (say from four to six days) when not only the leaves, but the whole stalk becomes dry; and changes from a green or yellow, to a light brown colour.

If it is not to be cured by fire, the tobacco is brought to the scaffold and hung, and the sticks are crowded in the same way on the scaffold, until the same yellow colour is imparted to the leaves, and some planters are so particular as to cover their scaffolds with green bushes during this crowded state, to prevent sun-burning—when the proper time arrives, which is indicated by the yellow colour of the leaves, the sticks are thinned and placed at such a distance as to admit the influence of the sun and air, and if the weather is warm and fair, in 5 or 6 days, the curing will be so far effected as to justify the removal of the tobacco into the house, when it must be properly and finally arranged, and the cure will be gradually accomplished by time and season. But if damp, hot weather supervenes, it will be necessary, both in this and in the case of tobacco already cured by fire, to make moderate fires under each whenever it comes in very high order.—In such weather and in such order, tobacco is liable to contract a mould about the stems, which can only be prevented by keeping it dry by fires. This mould injures both the quality and appearance greatly, and cannot be easily rubbed off. Great attention is therefore necessary to prevent it by these occasional fires until regular cool weather sets in, after which there is no danger. From the vicissitudes of our climate for some years past, and other causes, it happens commonly that some portion of our tobacco is not mature, and is left until we are compelled to cut it by the approach of frost. Such plants, even if fully ripe, seldom cure of a good colour or quality for want of proper seasons. And here we may venture a general remark; which is, that tobacco cut early and fully ripe, will cure well and be of good quality under the most unfavourable circumstances, while that which comes late into the house, is difficult to cure and of inferior grade.—After the housing of tobacco is all accomplished, and cool weather begins, the house should be closed with green bushes, or fence rails set up on end close around on the outside of the house, to exclude damp air, and beating rains which generate mould, &c.

Of Stripping and Prizing.

Stripping is begun as soon after the plants are thoroughly cured and seasoned, as the convenience of the planter will permit. It is taken off the sticks in proper season or order, and packed in a large bulk for this purpose, and generally in higher order than is proper for prizing, which enables the strippers to handle it with less waste, and to tie it more neatly. There are two facts generally believed to exist, in relation to the order of tobacco, which are

unaccountable. One is, that tobacco in order, or in a moist state, is no heavier than when dry. The other, that if it is taken down and bulked, as it is going out of season, that is, as it is passing from a moist to a dryer state, it will return in the bulk to the highest state of order it had previously acquired—These opinions, however, seem to have been established more by prescription than recent experiment, for I can find no person that will absolutely assert the facts upon his own experience. But be it as it may, the latter fact is so generally believed as to be attended to in bulking tobacco.

In stripping, the best planters make two qualities besides stemmed. For this purpose, every plant passes through the hands of the sorters (the most experienced and judicious of the labourers) who pull off the two first, or ground leaves, without looking. Upon examination, the remainder of the plant may be found fit for the first class—perhaps two more leaves are to be taken off, or perhaps the whole is only fit for the second class. In this way the first class is obtained, the leaves previously pulled off are again sorted for the second class, and what is unfit for this is stemmed.

No definite idea of the quality of the different classes can be well conveyed by description. It can only, and soon will be acquired by observation and experience. The bundles of each consist of four or five leaves neatly wrapped around the head with another leaf. The stemmed tobacco (about two-thirds of the stem only being taken out) is tied in large bundles, and when packed in the hoghead for pressing is untied and laid loosely, but in straight and uniform layers.

After stripping, some planters hang up their tobacco upon sticks drawn smooth and somewhat to a feather-edge, and as it comes in proper order for prizing it, is taken down and bulked, and closely and effectually covered till the time of prizing arrives. The months of April and May, are thought the best time for this. Others pack their tobacco in double winrows, that is slightly lap the tails of the bundles, placing the heads on the outside, and thus raise a bulk of three or four feet in height. It remains in this situation well weighted, but oftentimes without cover all the winter, and perhaps gets completely dry; but returns in

proper order for prizing in the warm weather of April and May. It is a matter of much doubt and dispute, which of these two modes is the best. Perhaps the latter is to be preferred, because it is the least trouble, provided the planter has plenty of house room, and can so order it as to leave the winrows entirely free from interruption. Other planters more careless, carry on the operation of stripping and prizing together, without due regard to the order of the tobacco, which may account for the excess of inferior qualities, and diversity of prices exhibited in our markets.

Prizing is the last operation, but not the least important in the care and attention it requires.—The size of our hogheads are prescribed by law. They must not exceed four and a half feet in height, nor 55 inches in the diameter of the heads. In these we generally attempt to press 1500 lbs. but we oftener fall below than go over it.—The average is perhaps not more than 1350 lbs.—Our prizes are of the cheapest and simplest construction, generally fixed by the labourers who use them, and not exceeding two or three dollars in entire cost. The stump of a tree is generally used, instead of a post in the ground, until it rots, and the hoghead is protected by a temporary shed, or a light portable roof straddled across the beam.—I subjoin a sketch of the one most commonly used. This you will observe operates by an increasing suspended weight, capable of being increased by the addition of stones to any required extent, and which is suffered to settle gradually to the desired point, by which all danger of bruising from sudden and violent pressure is avoided. The important points in prizing, are to pack the tobacco neatly, in straight and regular layers. This is best done by putting in only one bundle at a time, pressing & squeezing it closely through the hands as it is done, to make it occupy less space, by which it will exhibit a better appearance when it is opened for inspection.—To make it descend always on a level in the hoghead, by never suffering the beam to be depressed below a horizontal position, and to cause the tobacco in prizing, not to leave the inside of the hoghead, which can only be effected by having different sets of press boards, corresponding to the different dimensions of the hoghead between the buldge and the head.

* Q. As you have promised an essay on the culture and management of Tobacco, it is probable that your correspondent may not be apprized of the mode of destroying that enemy of the tobacco crop, called by planters the ground worm—should he omit this, I offer you a mode practised by myself for several years with success.—Old land, and manured lots, especially where they have a considerable coat of dried vegetable matter, abound in the ground worm, which cut the tobacco plant, so soon as it is stuck in the hill, and indeed continue their depredations often until it is nearly grown.—On old land the great objection to cultivation by the planter is, *he cannot get his tobacco to stand for the worm*—and they are in fact a formidable adversary, as I have seen 50 caught out of 1 hill.

I plough my lots deep in the fall or winter, and stir them often in the spring, before they are hilled.—Before ploughing in the spring, I sow two or three bushels of Indian corn to the acre, and plough it in; then let in my whole stock of hogs, taking care not to put the hogs on when the ground is wet—and at each ploughing I repeat the seeding of corn.—The hogs in searching for the corn, extirpate the worm, and no corn is lost, as it is all got by the hogs—you only lose the labour of the seedman—and for this get the load much better broke—I have had two lots, one treated in this way, the other planted without letting the hogs on—and in the latter, scarcely made any tobacco for the worm, while in the former, scarcely a worm could be found.

T. A.

LOCUST POSTS AND CHESNUT RAILS,

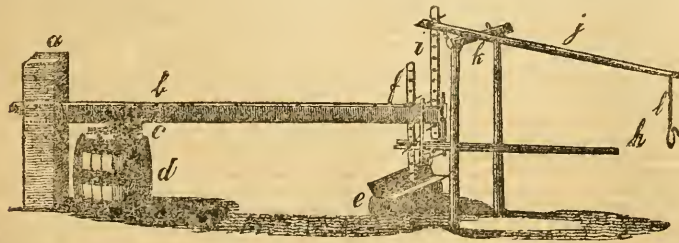
Still thought to be the best materials for

FENCES.

SHARON. 20th November, 1821.

John S. Skinner, Esquire,

DEAR SIR—The remarks on fences, by Mr. William Noland, as recorded in the 33d number of the American Farmer, are deserving of particular consideration—and I was gratified with the polite notice which he had taken of a communication of mine on the same subject. I had indeed seen a small sample of the sod bank, but it was put up in a manner that did not give me the most favourable impression, and the brick fence I had never before heard of; so that Mr. Noland's description of those two kinds was new and very interesting to me. On a reference to my communication, it will be found that Mr. Noland and myself perfectly agree as to the stone fence where the material is plenty and convenient; but for general purposes I preferred and recommended the post with 5 rails, that is, locust post and chesnut rails; my reason for preferring that kind of fence was, that it occupied less ground than any other, and the borders of the fields could be more readily kept clean, and I preferred those materials in consequence of their durability, and the ease with which they could be obtained by every farmer, as their growth will succeed on a tolerably poor soil in any part of our country; and one acre thus appropriated, is amply sufficient to keep the fences in constant repair, on a farm of 500 acres; which would be an appropriation of ground, less than would be occupied by the sod bank, or even the brick fence. It is true that where the materials are not now growing, it will be necessary to plant and look about thirty years forward for a yield; then the provision would be everlasting, and I know of nothing cheaper; for the present the farmers will adapt that kind of fencing best suited to their respective cir-



a the stump or post, *c* the blocking, *d* the hoghead, *f* the sword connecting the weight *e* to the first lever *b*; the second lever *h* is applied to the first by the frame *g*; by pulling the rope *l*, the sweep *j* working on the gallow *k*, raises the lever *h*, as the sweep *a* and first lever are connected by a sword *i*—if the weight put in

e, is too great to be raised by the power applied to the second lever *h*, the design of the sword *f* not being fixed in the ground, would be frustrated—the weight, however, may be readily adjusted to your power by putting more stones in *e*, or taking some out of it.

circumstances. The soil bank and brick mentioned by Mr. Noland, I think would be beautiful, and would no doubt be the most proper in some situations, but the former I fear would not be proof against sheep, unless the ditches were filled with water, and the latter would probably require (in this climate) a bank thrown up about a foot high, or a foundation dug to guard against frosts.

Yours very respectfully,

JAMES WORTH.

THIRD ANNIVERSARY OF THE ALBANY COUNTY

Agricultural Society.

ADDRESS.

(Continued from page 277, Vol. III.)

Another point of primary importance in good farming, but in which our country is defective, is the draining of wet and marshy grounds. Much of our best land is not only rendered useless by this neglect, but it often becomes the local cause of sickness and death. If our farmers would annually devote a few days after harvest to ditching their wet grounds, and dresting them of their bogs and brush, they would greatly improve the beauty and productiveness of their farms, and contribute to the health of their neighbourhood.

Let me impress upon you, gentlemen, the importance of obtaining the best breeds of stock, and of keeping them well. It costs no more to keep a sheep whose fleece will bring you six shillings or a dollar a pound, than one whose fleece is worth but three shillings per pound—no more to keep one whose carcass is worth at market from five to ten dollars, than one which will bring you only one dollar or two dollars. The Merino and Leicester breeds are among us; and the extra cost of procuring them in the first instance, is soon remunerated by the increased value of the flock. Wool is becoming a valuable staple of our country; and the domestic demand alone is likely to increase in a ratio greater than the increase of our flock. It will not be denied, that our fine wool-dressed sheep have increased ten fold within the last ten years; and yet the supply is so inadequate to the demand, that a merchant in New-York recently imported a cargo of wool from Liverpool, which he sold to our manufacturers at a handsome profit. This fact should do away any doubts which may exist in the minds of wool growers, as to the home demand for this article.

The advantages of a good breed of neat cattle, of horses, and of swine, over bad ones, must be equally apparent. The former generally require less food to subsist them than the latter, as they roam less, and are more docile and orderly in their habits.

But the advantages of good feeding, whether we regard the fleece, the labor, the milk, or the carcass, are much greater than would be imagined on a superficial view, particularly to milk cows. The English board of agriculture, have published an account of the expense of keeping, and of the product and profit, of a cow kept by William Cramp, of Lewes. The cow was generally fed with half a bushel of grains, malt dust and shorts, per day, besides ronts and grass, and kept in a stable. The expense of her keeping averaged £23 5 3 (\$103) per annum, and amounted to \$412 in the four years; and yet the net profits of this cow are stated to have amounted to \$170 a year, or \$60 for the whole time. The cow gave from 5 to 22 quarts of milk per day, which produced from five to thirteen pounds of butter per week. The skim milk and manure were taken into the account of profits.

The Massachusetts Agricultural Repository affords a case equally remarkable. Mr. Oakes, of Danvers, purchased a cow in 1813, which had been selected out of a drove. She was then five years old. With or-

dinary keeping, he made from her milk, in that year, 180 lbs. butter. In 1814, he fed her with ten or twelve bushels of meal, and she produced him 322 lbs. butter. In 1815, he gave her from 30 to 35 bushels of meal, and her butter exceeded 400 lbs. In 1816, she was fed with a bushel of meal per week, and all her skim milk; and between the 5th April and 25th September, she produced 4841 pounds, and suckled her calf five weeks of the time. The cow was exhibited at the latter date, and took the premium at Brighton fair.

With the same attention to feeding, and care in crossing and preserving our best animals, that has been bestowed upon these subjects in Great Britain, I am persuaded our cattle might, in a few years, be made to equal any in the world.

As improved implements of agriculture are coming into use, as their advantages are appreciated, I will omit what I designed to say on this subject, and invite your attention to gardens and orchards, as not only sources of convenience and comfort, but of economy and profit.

The productions of a good kitchen garden, contribute essentially to the sustenance and health of a family. They afford an agreeable variety in our diet, and are one of the best ornaments in the vicinity of a farm house. Half an acre of ground, devoted to garden fruit, and the cultivation of vegetables and vines, if well attended to, is generally more profitable, in the economy of a family, than any other two acres upon a farm. When, in travelling, we see a garden abounding with vegetables, studded with fruit trees and shrubbery, and ornamented with borders of flowers, we involuntarily ascribe to the unknown possessor, industry, good taste, hospitality and comfort. And I should be disingenuous did I not add, that the female part of the family come in for a large share of the imputed merit. The expense of cultivating such a garden is comparatively nothing. An occasional hour in the morning and evening, or on a lowly day, aided by the always ready assistance of the females, is all that is requisite.

Orchard trees, whether of the orchard or garden, are a source of substantial profit. A gentleman in this neighborhood, has sold garden fruit, from two acres of land, in one year, for more than one thousand dollars; and I know of orchards which yield the proprietors from 500 to 1000 dollars per annum. But independent of considerations of profit, the satisfaction of having, for our families and friends, a constant succession of garden fruit, is of itself ample compensation for the trouble of raising it. And how pleasant it is to a social mind, especially to the sons of N.-w.-England, to perpetuate the hospitality of their fathers, by treating a circle of neighbors, seated round a winter evening's fire, with the sparkling cider and spicy apples of his orchard. These social meetings among neighbors, which good cider and good apples tend to produce, are calculated to beget good will, to promote friendly intercourse, and to extend the sphere of useful knowledge. I have said nothing of cider as a table drink, nor of its usefulness as a substitute for ardent spirits during the hay and harvest season. These advantages you can all appreciate.

As connected with the orchard and garden, I would strongly recommend that a nursery, on a small scale, be formed by every farmer. I have made one of 2000 trees, embracing all the kinds that are cultivated among us, the whole expense of which, including labor, has not exceeded fifteen dollars. The seeds and stones should be gathered as the fruit ripens, or is used, and deposited in a box of dry sand or earth, until they are sown in November. The plants should be kept clean from weeds and grass, and the earth loosened between the rows at least once a year. The process of inoculating is simple, and may be learnt with a little practice.

Men often object to planting fruit trees and nurseries, on the plea that they may never live to enjoy the fruits of them. Such an objection is mercenary and selfish and betrays an ignorance, or disregard, of the obligations we all owe to posterity and to patriotism.

Nathaniel Eaton, proprietor of the American Agricultural Repository, in the establishment of agricultural libraries in towns or districts, to consist, in the outset, of at least some of the best American publications; and the collection may be subsequently enlarged according to the ability and disposition of the proprietors. Chemistry has been successfully employed for years, in aiding the operations of capital and skill, for increasing the products of agricultural labor, and improving the arts. To appropriate their joint labors to our individual profit, it is necessary we should become acquainted with their discoveries and improvments; and the sooner we attain this knowledge, the more we shall be benefited by it. I know that book knowledge, as it is sometimes called in derision is scouted by many as unworthy their attention; by many, I fear, who do not appreciate its advantages, for the reason that they are strangers to it; and sometimes, perhaps, from a propensity inherent in human nature, to treat lightly privileges which they do not possess. The book knowledge which I would recommend, is not the wild theories of speculative men. Most of our agricultural books are written by experienced farmers, many of whom have been aided in their practice by the lights of science; and they comprise valuable experiments, made with accuracy, in the various branches of husbandry. The memoirs of the Philadelphia Society, the Massachusetts Agricultural Repository, the Practical Farmer, by Gen. Armstrong, Taylor's Arrator, Cox's on Fruit Trees, and some works on the treatment of live stock, together with the Plough Boy, would form a valuable collection, the cost of which would not exceed thirty dollars. The American Farmer, a very valuable periodical paper published at Baltimore, and wholly devoted to our interests, would add four dollars to the annual expense, and be a great accession in point of utility. I will add to the list, the late edition of Willich's Domestic Encyclopedia, revised by Professor Cooper, as a work which contains much that is useful and interesting in husbandry and domestic economy, and which comprizes the latest improvements in the mechanic and household arts, in agriculture and in science, with many illustrative plates. This valuable work, which is in three 8vo. volumes, would not swell the total expense to fifty dollars.

Gentlemen, I appeal to your interest, as well as your patriotism, in behalf of the manufactures of our country. For several years, the importations of foreign goods have exceeded our annual exportations, some millions of dollars. To make up the deficit, specie has been drained from the country, a vast debt has accumulated against us in Europe, and thirty millions of public stock has been transferred to foreign hands. The United States pay nearly two millions of dollars annually to Europeans, as interest on stock which they hold. It is wise to anticipate the crisis which this state of things must ultimately produce. Who among you would consider himself in a thriving way, if his purchases exceeded the sales of his produce one or two hundred dollars a year? The good sense of every man must convince him, that such a balance of trade would soon produce bankruptcy. What would be the conduct of a discreet manager, if he had parted with his money, his stock, and run in debt besides, by annual balances accumulating against him? He would at once put a part of his family to the wheel and loom, to the bench and the anvil, and thereby save his merchant's and mechanic's bills—feed the manufacturers of his family with a part of his produce—exchange another part with his neighbors for necessities which he stood in absolute need of, and take care that in future, his expenses should never exceed his income. A nation is a family on a large scale. And as the American family abounds with artisans in all the useful branches of mechanical labor, I leave you to carry out the parallel.

Upon our wives and daughters devolves no inconsiderable task in the work of economy and improvement. With them rests, almost exclusively, the business of household manufactures. And to them belongs, especially, the example of evincing their worth,

and, I may add, their patriotism, by substituting the substantial and comfortable goods of their own looms, for the flimsy fabrics of Europe and Asia.— Theirs is the task of introducing and perpetuating system and economy in the household; and of preserving, by their good temper, affability and domestic virtues, from sinks of dissipation and haunts of idleness, their husbands, brothers and sons. In fine, theirs is almost the magic power of rendering

"Home, the resort

"Of peace, of love, of joy, and plenty."

With these high responsibilities upon them, added to the flattering evidences which our fairs have exhibited of their efficient co-operation in promoting the objects of this society, they merit, and will receive, our warmest gratitude and affection.

REPORTS.

REPORT OF THE VIEWING COMMITTEE.

The Committee appointed to view the Farms and Crops offered for premium, in the county of Albany, the present year, respectfully report:

That they met in July, and after making the necessary arrangements, proceeded immediately on the duties assigned them. In the course of their tour they examined

22 Farms,	2 Fields Beans,
16 Fields Flax,	3 Nurseries.
10 do. peas,	

They have received the report from the Town Committees, from which it appears, that the products of wheat, Indian corn, oats, barley, and potatoes, have been as follows, in the several towns:

	Wheat.	Sp. Wheat.	Corn.	Oats.	Barley.	Potatoes.
	1st. 2d.	1st. 2d.	1st. 2d.	1st. 2d.	1st. 2d.	1st. 2d.
Waterville,	bu. qt. bu. qt. bu. qt. bu. qt. bu. qt. bu. qt.					
Albany,	39 13 57 16		115 96 8 86 880 20			
Be-thlehem,	64 12 37 16 26 8		133 1 90 7 4 22			
Coxscomb,	44 9 44 2 27 6		113 105 123 24 93			
Westerlo,	35 4 38 36 36 4		81 70		71 22 69 8 550 435 20	
Rensselaerville,	30 4					
Blenheim,	35 4					
Gettysburg,	33 4					

The crops throughout the county were generally very fine, and those which became the particular duty of your Committee to inspect, to wit, flax and peas, were, in their opinion, rarely if ever exceeded.

It is with pleasure your committee report, that they witnessed a general spirit of improvement through the county: their attention was particularly attracted by the many recent improvements in out-houses, fences, and a certain neatness in husbandry generally; they feel, therefore, a confidence in asserting, that the utility of this institution is most sensibly felt in this county.

The committee received a fair compensation for their services, in the polite and hospitable treatment received from the citizens generally, and embrace the present occasion to return their most grateful thanks.

In fulfillment of their duties, the committee have awarded the several premiums offered by the society.

Here follow the lists of premiums awarded by the several committees—On Farms—On Tillage—On Animals—Manufactures—and on Ploughing; and the proceedings of this respectable and flourishing Society conclude with the following resolutions:

At a meeting of the Executive Committee, on the 11th October, 1821

Resolved, That in future no person, other than a member of the society, who has duly paid his subscription for the year previous, shall be permitted to exhibit any farm, crop, animal or manufactured article, for premium, at the annual fairs of this society, without first depositing with the examining committee, for the use of the society, two dollars for every article thus offered: and it shall be the duty of the several committees, including town committees, to demand and receive said deposit before they proceed to examine any article thus offered.

Resolved, That the several town committees, in examining crops offered for premium, shall first examine the entire crop offered for premium, and select a medium quality, two rods, or sixty-six feet square; that they shall then put down a stake exactly at each corner, and draw a line on each side, from stake to stake, and see that no grain is cut or picked, or vegetables dug, except what grows within said line—that the measure of ground, planted in hills or rows shall commence from the centre of the space between said rows or hills—that in all cases the grain and vegetables shall be properly cleaned, measured, and one bushel correctly weighed, the result of which shall be plainly stated in the annual report and schedule of the town committee to the viewing committee, according to the annexed forms.

FORM OF A CERTIFICATE.

To be made on the 2d Tuesday in October to the Viewing Committee.

We, the subscribers, town committee-men of the town of _____ do hereby certify, that at least two of us have examined the crops specified in the annexed schedule; that the specimens selected were of a medium quality of the two acres offered for premium, and consisted of two rods, or sixty-six feet square, being the fortieth part of an acre; that a stake was set down at each angle of the square, and a line drawn tight, from stake to stake, round the whole, and no grain cut, or vegetables dug, growing on the outside of said line: that the crops in hills or rows were measured from the centre of the space between the rows or hills; that we saw the said two rods square cut or dug, threshed or shelled, perfectly cleaned and measured, and weighed; and that the measure and weight are correctly expressed below.

[FORM OF THE TABLE.]

Names.	Crops.	Prod. 2 rods.	Acres	Weight	per bush.
John House	Wheat	1 4	45	60	lbs.
Cornelius Veeder,	Corn	2 16	100	50	
Peter Alley,	Potatoes	10 00	100	52	
John Alston,	Itata Baga	12 1	480	56	
Peter Squim,	Barley,	2 00	1	43	
Samuel Ostram,	Oats,	2 0	50	43	
Jesse Allen,	Peas,	2 1	55	43	

JOSEPH ALEXANDER, Secretary.

Agricultural Society,

OF ALBANY.

CHARLOTTESVILLE, (Va.) Nov. 9.

At a regular meeting of the Society on Monday the 8th of October, 1821, the following officers and committees were elected to serve for one year:

James Madison, President,
Thos. M. Randolph, 1st Vice-President,
Jno. H. Cocke, 2d Vice-President,
Nimrod Bramham, Treasurer,
Peter Minor, Secretary,
Thos. W. Mawry, Assistant Secretary.

Committee of Correspondence.

James Barbour, Th. M. Randolph,
Th. G. Watkins, and
Wm D. Merriwether, Peter Minor.

Committee of Accounts.

Th. Estlin Randolph, Tabney Minor, and John Winn.
The committee reported a statement of the Treasurer's account, exhibiting a balance in his hands, due the Society of \$549 37½, exclusive of interest and of arrears due from members.

The society then *Resolved*, To continue the offers for Premiums heretofore made for the greatest productions of wheat and corn, and the reclamation of worn out land; for the best experiments made to ascertain the value of oxen as a substitute for horses, and for improved agricultural implements, for two years from the limited time prescribed respectively for each; subject to the same rules and regulations as heretofore prescribed. That is to say—

1st. A premium of Thirty Dollars for the greatest production and best quality of winter Wheat, from no less than two acres in one piece.

2d. A premium of Twenty Dollars for the next greatest production from the same number of acres.

These premiums to be awarded in the regular autumnal session of 1823, and for wheat the growth of that year.

3d. A premium of Thirty Dollars for the greatest production and best quality of Indian Corn, from the same number of acres, made upon high land.

4th. A premium of Twenty Dollars for the greatest production from the same number of acres.

These premiums to be awarded in the regular spring session of 1823, and for corn the growth of the year 1822.

5th. A premium of Fifty Dollars for the best method of recovering worn out Land to a more hearty state, within the power of farmers in general, by judicious culture, and the application of common and cheap materials as manure, founded on experiment made upon at least two acres.

6th. A premium of Forty Dollars for the second best method.

These premiums to be awarded in the autumn of 1823.

The foregoing premiums are all to be paid in silver plate, with proper inscriptions, and none but members of the society can be candidates for the same. The society reserves to itself the right of withholding the premium in any case where there appears no peculiar merit.

Candidates for premiums on crops must give notice thereof by letter, (post paid) or by personal application to the secretary on or before the first of April, 1823, as it regards corn, and on or before the 1st of September, 1823, as it regards wheat—Stating in writing their names, residence, description of the crop raised, and the object offered for premium also, the nature and quality of the produce, the manner of cultivation, the quantity and kind of manure used the preceding year—the quantity and kind of manure used at the year of its production, the quantity and kind of seed sown or planted, and the manner of preparing it the time and manner of sowing or planting, and of harvesting.

It is understood that the several kinds of grain must be raised on *old improved land*, and the products ascertained by the certificates of two respectable and disinterested witnesses.

Extracts from the minutes.

P. MINOR, Sec'y.

AGRICULTURAL SOCIETY OF ALBEMARLE.

Charlottesville, Nov. 16.—The following premiums are offered free for the claim of every person, whether he is a member or not.

1st. A premium of Thirty Dollars for the best experiments made to ascertain the value of Oxen as a substitute for Horses.

2d. A premium of \$20 for the second best experiments.

It is believed that great advantages would be derived from the general use of oxen instead of horses in husbandry and other services—that by proper training they can be made to travel not only as fast with a loaded carriage (properly shod, but to plough as much land, either singly or in pairs, as the same number of Horses, particularly if geared in horse harness, with such variation as will adapt it to their particular shape—or with improved yokes strapped to their horns. It is to ascertain these particulars that the society are induced to offer the premiums, and it is expected that candidates will accompany their claims with a written essay, embracing every particular that is calculated to place the subject in a satisfactory point of view.

3d. A premium of 30 dollars for the best improved and constructed Plough for three horses.

4th. A premium of 15 dollars for the best improved and constructed Wheat Cradle.

These to be placed and remain as models in the Society's repository.

The foregoing premiums to be awarded in the autumn of 1823.

Extract from the minutes.

P. MINOR, Sec'y.

FOR THE AMERICAN FARMER.

LUNAR INFLUENCES.—On animals and vegetables, disputed.

It was not my intention to have written again to you, concerning lunar influence; and neither am I induced, by any tenacity of opinion, to do so now—but from the wish to render at any rate, a small benefit to our country, in despite of those who use their endeavors to maintain the empire of Ignorance. I am incited to make these observations, from the accidental reading of the Harper's Ferry Free Press; in which are published the effusions—for they cannot be called observations, of some one, who, with a felicity not commonly met with in news-paper writers, has signed himself "Ignoramus;" who, after some clumsy comparisons, broadly denies what I have said, without adducing a single fact, or authority against me: unless the reader can consider his whole communication the effect of lunar influence—as the moon filed on the 11th, and the piece was written on the 13th October, the very time when her greatest influence on the tides is universally admitted.

But though it may be useless to offer arguments to Ignoramus's, yet it may be done with good effect upon those who can think and reason—and should any one believe I have not sufficiently established my point in the former communication; I will support it by additional proof.

The only perceptible influence of the moon on our earth, is the raising of the tides—which phenomenon, depending on the universal principle of gravitation, is perfectly intelligible to all, but those who consult Tellamed upon Natural Philosophy; or Tristram Shandy for medical opinions. But this philosophical attrac-

tion is very different from that which supposes an influence upon vegetation, a living body, or an salted meat; which remains yet to be proved by its advocates, the onus probandi resting on them. In the mean time they may digest the following extract from Rees's Encyclopedia on the subject.

"As to the influence of the moon on the changes of our weather, and the constitution of the human body, we shall observe that the vulgar doctrine concerning it is very ancient; and has gained credit among the learned without sufficient examination, but it is now generally exploded by philosophers, as equally destitute of all foundation in physical theory; and unsupported by any plausible analogy.

The famous Dr Mead was a believer in the influence of the sun and moon on the human body; and published a book to this purpose (A. D. 1704)—*De imperio Solis ac Lune in corpore humano*. But this opinion has been exploded by philosophers, as equally unreasonable in itself, and contrary to fact."

The heat reflected from the moon, has hitherto been undetected by the nice calorific measurers which philosophy has invented; but I am not unwilling to suppose it equal in degree, to her reflected light; which may be made the most of, for Mr. Leslie, celebrated for his experiments upon light and heat, affirms the illuminating power of the full moon, to be 150,000 times less than that of the sun;—but Bouguer, whose experiments are admitted by Sir Humphry Davy on this point expressly, shews it to be 300,000 less. The moon's influence, if it depends on light and heat, may therefore be estimated—that if 300,000 makes bacon shrivel, or a plant grow, one tenth of an inch; the moon's influence will effect $\frac{1}{300,000}$ part of said tides of an inch; which influence and no more is admitted—by A. K.

Editorial Correspondence.

SIBERIAN WHEAT—Very productive.

It is stated in volume 2, page 272 of the American Farmer, that one grain of Siberian Wheat was sown in the year 1819, and produced 1660 grains; we have recently ascertained that these grains sowed in 1820, have produced 253,000 grains, or 17 lbs.—the last number of grains was found by counting one ounce and weighing the whole quantity. The ground on which this wheat grew, is not of the best quality, and lies in Scotland neck, N Carolina. It was much infested by birds, and shattered by careless reapers: the extent of these losses no doubt nearly equalled the quantity saved, for, at one time, we had every reason to believe that we should be able to gather half a bushel of wheat on the patch. The quality of this wheat is very good, the grain is large, the skin is white; and although it does not ripen as soon as the yellow wheat, yet it is thought to make more flour to the bushel, having less bran. It is not bearded.

One half pint of the same wheat, sowed in December, 1819, produced in the summer of 1820, half a bushel, that is 60 for one; twenty four pounds of which were sowed, and yielded

his summer, 12 bushels of winter wheat; that is 30 for one. V. V. respectfully, &c.

We are indebted for these details of the produce of a small parcel of Siberian Wheat, to a very respectable Agriculturist of North Carolina, upon whose farm it was cultivated. This wheat is no doubt an excellent and productive variety. We hope it will receive his attention, until its comparative value has been clearly ascertained. The yield of the single grain was immense, and the product of the greater quantity is a very large one. We do not recollect ever to have seen so large a yield stated from a single grain of wheat, and it is very unusual to reap at the rate of 60 or even 30 bushels to the bushel sowed. The returned made by one grain sowed singly, and having room on all sides to extend its roots and stalks, is a happy illustration of the great increase produced by the drill cultivation, now so generally advocated in Great Britain. The great disparity between the produce of a single grain of wheat, and that obtained from half a bushel, one would think presents an incontrovertible argument in favour of the open, single or drill cultivation; by this we get 1660 for 1; by the common modes, 60 or 30 from one were only obtained, using the same kind of wheat.

A more extraordinary instance than the above may be brought in support of the drill culture of small grain, and be found in the following words in Duhamell's Husbandry, Part II, chapter 1, page 117, quarto edition of 1759.—"A farmer at Acon, seeing us place our greatest hopes of success on the frequent stirring of the ground while the wheat was in it, and our allowing each plant sufficient space to extend its roots and collect the moisture, tried an experiment which appeared to him very proper to discover the truth of our reasoning. He carefully cultivated a grain of Barley, which grew by chance in his Vine yard. This plant, said he, grows by itself; it can extend its roots every way; it is in a rich soil, and cannot want for food; by joining frequent culture to these advantages, this plant of Barley, according to the principles of the new husbandry, ought to yield a surprising increase. His reasoning was just, and was confirmed by the experiment; for this single grain of barley produced two hundred ears, and about thirty stalks which had no ears. Some of the stalks were four feet high, and most of them were three. I counted twenty-four grains in a middling ear. Thus one grain, planted in a good soil, and well cultivated, produced 4800 grains, and the straw of this single plant, makes of itself a sheaf, which I keep by me." Ed. Am. Farmer.

FOR THE AMERICAN FARMER.

CELLERY SEED.

It is a fact, known to but few, that cellery seed, in the quantity of a desert spoon full to a gallon, added in soup of any kind gives to it a richness of flavor that is no other way to be had, and has this advantage over the cellery itself, that it is to be had at all seasons, and at a much less price. T.

FOR THE AMERICAN FARMER.

Nutritive quality of the Sow Thistle—Weight of a remarkable Lincoln Wether—Sporting Anecdotes

GEORGE TOWN, (D. C.) Nov. 25.

Dear Sir—I have to thank you for your attention in sending me the Chocolate Corn. I have had it these twenty years, and it was always used to feed chickens. I am of opinion, that all the substitutes for tea, coffee, or chocolate, yield greatly to the thing itself.

I now set down to give you an account of a fat Lincoln wether, word for word, as I have it before me, in a passage speaking of the nutritive powers of the sow thistle in the fat wether sheep, fed to an amazing size by Mr. Trunell, of Bicker-fen, near Boston, Lincolnshire, upon fen land. It is stated that this sheep was bred by Mr. Hutchinson, in Hail-fen, from a ram bred by Mr. Robinson, of Kirkby, near Sleaford. He never ate any corn, oil cake, &c.; but fed wholly upon grass and herbage. Being turned with many other sheep, into a field of clover, this sheep was observed to search for the sow thistle, and would eat no other food whilst any of them could be found in the parts of the field, that were hurried off successively, a little at a time. None of the sheep that fed with him, showed any liking for the sow thistle. A small hut was erected for him in the field, to repose under in hot weather; and when the part that was hurried off became bare of food, his attendants (being guided by his propensity for sow thistles) gathered a quantity for him, of which they gave him, at stated hours, three times a day, from 2 to 5 lbs. a meal.—Standing on his feet he measured only two feet six inches high: he was weighed once a month, and weighed alive 26 stone;* he gained only one pound the last month—and, as it was thus concluded that he had got to the top, and was quite ripe, and might possibly lose weight the next month, he was killed on the 18th October, 1791, by Mr. Isaac Lumby, of Bicker, being then a 4 shear, or 4 year's old sheep.—The skin hung up by the nose, measured 10 feet 2 inches from the point of the nose to the tip of the tail, and was sold for 74. 6s in the common course of business.

The carcase measured 5 feet from the nose to the tail; the rump or cushion 8½ inches in depth; plate or fore flank the same thickness; breast end 7 inches; one yard five inches and a half round the collar; weighed sixty-seven pounds and a quarter avoirdupoise weight.—The legs were estimated at 40 lbs. each; but if cut haunch of venison fashion, would have weighed 50 lbs. each; for which the proprietor, Mr. Lumby, was offered 2s. per lb. so that the two legs only would have brought 10l. If you wish it, I will give you the author from whom I had it.

A gentleman of Fairfax county, Va. who I have not seen for many years, ran at Alexandria a quarter of a mile in 56 seconds; and it was evident he would have done it in fifty, for he was so sure of his race that he galloped the first 100 yards, jumping, and saying that he would win it easy; a friend who was overlooking the stop watches, told him that it

he did not run he would lose his money—he then ran his best: the bet was 80 guineas.—Col. Fitzgerald, a gentleman of the revolutionary army, aid to Gen. Washington; a merchant called by way of distinction, Long Billy Hunter; and myself, were the judges. Each held a stop watch. The ground was accurately measured: they had measured it twice, 420 yards for a quarter—when I came, I told them it must be 440, so we added the 20 yards.—This was thirty years ago: the gentleman was alive last summer, and by what I heard of him I think he can run it in a minute now.

I can't find it, or I would give you an account of a mare, I think trotting 19½ miles in an hour.

Do you see in the National Intelligencer, an account of a soldier in England jumping 25 ft. 8 inches, at a jump, over a gully that wide, and 20 feet deep?

Credat Judicis Appella non Ego.

I have a particular account; some where, of a gentleman riding 120 miles in less than 6 hours, on ten blood horses, without any apparent fatigue. He lost the skin from the inside of his knee only, and was at the tavern in company in the evening. It was in Ireland.

Yours, &c. J. T.

To destroy Slugs or other insects on Young Wheat.

Nothing is more efficacious than quicklime, water-slackened, and sown by hand in its hot and powdered state. Wheat on clover lays is very subject to the depredations of insects bred in the soil. Salt has been used to destroy them.

THE FARMER.

BALTIMORE, FRIDAY, NOVEMBER 30, 1821.

All subscriptions to this paper for a shorter period than twelve months, must be at the rate of twenty five cents for each number.

PRICES CURRENT.

Flour, 1000 bbls. sold on the 27th at \$6 25, 60 days—28th, \$6 per bbl. cash—White Wheat, 130 a 135—Red do. 125 a 127—Yellow Corn, 53 a 60—White do. 58—Oats, 30 a 35—Whiskey from do. 31 cents exclusive of bbl—Hay per ton, \$12 a 14—Straw do. \$8—Live Cattle, \$3 a 6 50—Codfish, per quintal, wholesale, \$3—retail, \$3 50 a 4—Hams, 10 a 12 cents—middlings, 10 cents—Butter, 25 cents—Eggs, 15 cents—Cheese, 8 to 10 cents.

Maryland Tobacco—Fine yellow, none—good red, \$6 to 10—common, \$3 to 5, and in demand. Virginia—No Sales.

COMMUNICATION. ANECDOTES OF THE REVOLUTIONARY WAR.

We have seen proposals for publishing by subscription, "Anecdotes of the Revolutionary War in America," together with sketches of the characters of the men most distinguished in the Southern States, by their civil and military services. The author, from motives of delicacy, has, until lately, withheld his name from the public; and, in a private letter we have also seen, so modestly discloses himself, and the motives which influenced him in the one, and in the other course, that our curiosity with regard to the work itself, has been considerably excited. The work purports to be by "An officer of the partisan Legion of Lee;" and at the close of the war, he was a member of the family of that distinguished chieftain.

Such a work, well executed, is a desecration in American Literature; for that incident which fires the soul, and impels to noble daring—those distinguishing features in men, marking bravery, enterprise, self-possession, wit and humor, under circumstances, however adverse; are to be gathered yet, only by wading through volumes of dull detail, alone interesting to the politician. Nay, thousands of things escape the notice of historians very valuable to be known; and many are omitted as too insignificant for dignified history. The history of human character, however, is of more benefit to man in his social state, than all the range of words ever assembled and organized for a display of the cuts and thrusts of politicians. There is not a son of the revolution, however humble his station (if he were a volunteer in that holy cause) and who distinguished himself in the most trifling degree, whose merit ought not to be in some way recorded. The soldiers of the Revolution have been, generally, poorly rewarded by their country. It might be some consolation to their children, to know that, at least their merit was appreciated, if their services had not been sufficiently rewarded.

We have digressed from the object we had in view. The contemplated work, which has drawn us into this latitude of remark, is to be prepared by ALEXANDER GARDEN, Esq. a gentleman and a soldier, personally and professionally known to several of our own Revolutionary Patriots. If we are rightly informed, and we have no reason to question our source of testimony, he is a gentleman of superior education, talents and taste, and the life of the society in which he moves. We are entitled, if all this be true, to expect pressure and improvement from his work, and trust we shall not be disappointed.

* Subscriptions to this work are received at the office of the American Farmer, and at the Book store of Mr. EDWARD J. COALE.

FRUIT TREES, &c.

The subscribers, exclusive of their great variety of EUROPEAN TREES, SHRUBS & PLANTS, have cultivated a great number of the most valuable American varieties of APPLE, PEACH, PLUM & PLANT TREES. Also, a variety of AMERICAN SHRUBS & PLANTS; all of which are of a proper size to forward to any part of Europe or America. They pack them in the most perfect manner, so as to be sent to any distance with safety.—The proper time to remove them will be from the 15th of October.

Orders for trees, &c. left at their nursery, fronting the River, Flushing, L. I. or with

Messrs. HULL & BOWNE,

No. 146 Pearl-st. New-York.

Will be attended to, and the Trees, &c. carefully packed and delivered at New-York, by water, free of freight.

BENJAMIN PRINCE & CO.

Catalogues may be had at the Nursery, or of Messrs. Hull & Bowne.

N. B. For sale as above, 10,000 inoculated PEACH TREES, in the most healthy state. Also, 1000 elegant SILVER FIR, or BALM OF GILEAD, a beautiful Ornamental Evergreen.

* Orders may likewise be addressed to WILLIAM F. REDDING, at the publication office of the AMERICAN FARMER, Baltimore, who will attend personally and promptly to the execution of the same.

nov. 30

YOUNG MULES.

FOR SALE, Six Young Mules—five of them three years old; the other two years old. They are well grown, and perfectly sound—and will be sold low on application to the Editor of this paper.

PUBLISHED BY JOHN S. SKINNER.

* 48 lbs. to the stone.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL. III.

BALTIMORE, FRIDAY, DECEMBER 7, 1824.

NUM. 87.

AGRICULTURE.

HEMP.

In compliance with the wishes of a correspondent, expressed in a late number of the Farmer, we have collected several papers on the culture of **HEMP**. The subject is an important one, and will become more obviously so, as the demand increases under the favor shown by the Navy Commissioners to the domestic manufacture of sail-cloth. As the knowledge of the culture and management of Hemp spreads through the country—so will its capacity to produce it, be developed and understood. {Edit. Am. Farm.

FROM THE RICHMOND ENQUIRER.

The Agricultural Society of Richmond having received some valuable communications from very respectable correspondents, the benefit of which they are desirous of extending, as quickly and as diffusely as possible, amongst their Agricultural brethren, have directed a publication in your paper of the following:

1. The copy of a letter from W. C. Nicholas, of Albemarle, to Mr. Rodman, of North-Carolina, concerning the culture of **HEMP**, communicated by Mr. Nicholas, addressed under cover to the Society.

2. A letter from T. S. Slaughter, of Culpepper, to the Secretary, conveying an answer to certain queries lately proposed by the Society.

3. A communication from Theo. Armistead, of Norfolk, relative to the preparation of **TANNIN** for exportation, a new subject of rural economy, particularly interesting to the Farmers of the middle country.

NO. 1.

MAY 4th, 1811.

SIR,

Your favour of the 24th March was received by the last mail. Your application to me for instructions respecting the cultivation of Hemp, required no apology. The little success I have myself experienced, is due to the kindness of those to whom I applied for information when I began the culture.—This imposes on me the obligation of imparting to others what was so liberally communicated to myself. Another motive, of itself irresistible, is my earnest desire to promote the prosperity of my country, to which, I presume, nothing can more contribute than varying the useful products of our soil, so as to prevent the consequences which would necessarily flow from the confining of the agricultural labor of the country, to the production of a few articles. Hemp has strong recommendations: it is, intrinsically, worth as much as cotton; it is applicable to most of the uses to which cotton can be applied, and to others for which cotton will not serve; to commerce it is indispensable; and is the material of the manufacture, best suited to our wants, and to our population. When imported, hemp must be paid for with money, as it is the product of countries exclusively agricultural, which take none of our productions in exchange. Its bulk, and the distance of the countries whence it is brought, renders the expenses of transportation almost equal to the prime cost. It does not impoverish land, nor does it interfere with any of the crops we cultivate, except Tobacco. Hemp is sown before corn is planted, and is not pulled until the corn no longer requires cultivation; it needs no attention at the periods when wheat demands the labor of the farm, either for sowing, harvesting or threshing. From these re-

marks you will learn my opinion of the value of the hemp crop, in its relation to political as well as rural economy. The interference of public duties, and ill health, have prevented me from giving so much attention to this culture, during the short period I have been engaged in it, as I could have wished, and I regret that my information will not, therefore be so ample and satisfactory as I desire.

I am inclined to believe that your climate is not the most suitable to hemp; the plant may grow as large, and perhaps larger than in higher latitudes, but I expect that the bark will be lighter and coarser. My residence is twenty miles East of the Blue Ridge, and I doubt whether it would be possible with the same management, to make as good hemp at this place as could be made West of the Alleghany. It is true that Hemp is made in considerable quantities, in Spain and Italy, but as the most maritime and commercial nations of Europe derive their supplies from Russia, I conclude that the Northern hemp must be best.

I will now answer, with as much fulness as I can, your inquiries.—Question 1st. What is the kind and quality of soil most proper for hemp? Answer—A dark rich loam. I have not found land in which either sand or clay predominates, very favorable for hemp. On rich sandy land, the hemp grows to a great height, but the bark is coarse and light. On stiff clay I have never seen the hemp tall enough to yield a great crop. The plant depends chiefly on a long tap root, furnished with a few fibrous roots, the tap root penetrates to a considerable depth, and consequently requires a deep soft soil, and deep and thorough cultivation. 2d Question—Whether its being wet is an advantage or disadvantage?—Answer—I learned very early that wet land did not suit hemp, and my experience confirms the fact; so entire is the conviction in this point, where both hemp and flax are cultivated, that "Flax in the water and hemp in the fire" has become an agricultural adage. 3d. At what time is it best to sow hemp seed, and whether it would answer to sow in the fall, as I have been informed has been done in Virginia?—The usual time of sowing west of the mountains, whence I obtained all the information I possess, excepting what I have acquired by the practice of three years, is from the 15th of April to the 10th May. The month of April is, there, esteemed the best time for sowing, and in that climate it may be, but in this part of the country, the month of March is preferable. The best crops I have made were sown in March. Last year the early sowing was considered the worst hemp until the crop was broken, when it appeared that the bark of the late sown was lighter, although the hemp was taller. The spring of 1810 was more unfavourable to spring crops than we have ever known, our land was never wet from the 1st May until the 20th June, and if after such a season, early sown hemp proved better than late sown—its superiority in common years will not be questioned. The advantages of early sowing are not confined to the single circumstance of producing superior bark, but by having an early growth, it smotheres the other plants and weeds, and before the sun becomes very powerful, covers the ground, shades it, and preserves its moisture. I have never known hemp-seed to be sown in the fall, and am, therefore, unable to say whether it would answer or not, but in sowing early land that had been in hemp the preceding year, I have always found some volunteer hemp of considerable height which must have sprung from seed accidentally scattered the fall before. Of this I am certain, that hemp is a very hardy plant, and that frost, to kill it, must be very severe. I cannot, however, assert that it would stand

the winter, but am persuaded that if it would, the crop would be superior to a spring sown crop. My choice is to sow as early as possible, after the danger of the frost is over. I will take the liberty of adding to my answer to this query, my opinion that no plant requires the land to be more thoroughly and perfectly prepared; it should be broken at least ten or twelve inches in depth, and be loose and fine before it is sown. I effect this by trench ploughing in the fall, and plough at least twice afterwards; my last operation, previous to seeding, is to harrow the ground, in order that the seed may be sown on a surface perfectly smooth and level, which enables the seedman to distribute it equally. I then plough it in, and in that state the land is left. When I commenced the culture, my practice was to harrow in the seed, but abandoned it on observing that the land was more apt to bake in the smooth order it was left by the harrow, than in the state which the plough leaves it. When a rain fell before the seed came up, on ground that had been harrowed, I observed a crust formed on the surface, through which the tender sprout could not penetrate, and which forced it to turn down, in that situation many plants perished. I once had a sowing of eight or ten acres, on which I knew seed enough had been put, made too thin from the cause I mention. For the same reason, hemp is more easily pulled after the plough than the harrow, land that is harrowed being found closer and harder than that on which the last operation was with the plough. Farmers differ in opinion as to the quantity of seed that ought to be sown; five pecks to the acre is, however, more generally approved of than any other quantity.—I concur with this opinion in the main, but upon old and very foul land I have sown six pecks advantageously. It appears to be universally admitted that the crop is not injured by sowing too much, that only so many plants will rise as the land will bear, and that the waste of superfluous seed is the sole loss to be apprehended. If this be true (and nothing but the concurrent assertion of all the hemp makers I have conversed with could convince me of the fact) it is certainly better, always to give too much seed, and by this you will be secured likewise from the ravages of birds, worms, &c. I never saw a thin crop of hemp that was good.

In a crop of hemp, about one half of the stalks bloom, and the other half bear the seed. And the following are the indications of its being fit to pull. The stalks of the blossom, or male hemp, turn yellow, become a good deal speckled, and drop most of their leaves, and, when the air is still, a very perceptible cloud of dust rises from the blossom stalks, and hangs over the field. When ripe the sooner it is pulled the better. As it is pulled, it is to be laid in rows as thin as possible over the land in which it grows; after being pretty well cured on the ground, it must be bound into sheaves with some of the shorter hemp, and put up in shocks open at the bottom, in which state it should remain, until sufficiently cured to be put into large stacks or ricks, when it should be removed to the land on which it is to be dew retted. The stacks or ricks should be so constructed as to expose only the roots on the outside, and if the tops of the stacks be covered with hemp, they should be peeled the latter end of September, by which time, in most seasons, what is exposed on the tops will be half wretted, the hemp taken off should be laid apart from the rest to wret. When it is safe to house corn, and not before, the crop of hemp may be spread to wret, taking care again to separate the outside of the tops of the stacks, which will wret sooner than the hemp within the stacks. Hemp ought to be spread so thin as to cover at least three times as much ground as it grew upon. The length of time

requisite to wret hemp depends upon the weather, and it should be examined frequently. To ascertain when the hemp is sufficiently wretted, if after crushing seven or eight stalks with your hands, and holding them eighteen inches or two feet from each other, the head or stalk will shake out and separate easily from the bark, leaving it clean and entire, the process of wretting is completed. Your own observation and attention will soon make you acquainted with this part of the business, and better than can be effected by any written instruction. There is no risk; for by submitting it to the break (until you become skilful enough to judge without that trouble) you can easily provide against taking up your hemp too soon, and the frequent repetition of the same experiment will secure you from the danger of its being overdone. The precise point to aim at is, to take up the hemp at the moment when the bark or lint will separate from the stalk without being wretted or weakened. The bark or lint of hemp is connected with the stalk by a substance which must be either wretted or dissolved, before they will separate; produce the separation, and the work is accomplished.

I have been prevented, frequently, by the weather for eight or ten days in the month of March, from taking up hemp that was sufficiently wretted, and have never experienced any inconvenience from it; in cold or even cool weather, it is not easily injured by exposure. When your hemp is sufficiently wretted, take it up and put it in stacks of about 100 wt. each, tying them at the top with hemp. It should be perfectly dry when stacked. The business of the farm should be so arranged that you may commence breaking as soon as the hemp is ready, for it is subject to loss and injury, proportionate to the time you delay it.—My hemp, when broken, is baled in a box made like a cyder press, across the bottom four ropes are laid to tie the hemp when pressed into the box with a common press.

5th Query. What are the kinds of machines for breaking, scutching or swinging hemp, and where are they made?

Answer. We use nothing but a break similar to a flax break, but larger. My breaks are six feet long, 36 inches wide at one end of the bark, and twelve at the other end. With four wheels in the frame, and three in the upper part of the break. With this instrument (which any person may make who can make an helve to a hoe, or an axe) our hemp is broken and cleaned. With one of these a man will break, clean, and prepare for market, in one day, from 80 to 150 lbs accordingly as the order of the hemp, its quality, and the state of the weather may be more or less favorable.

6th Query. What quantity of hemp have you made to the acre?

Answer. Various quantities. When I commenced the culture, I was not only uncertain what parts, but, whether any part of my land would bring hemp; in some instances I have been sadly disappointed, and in others, agreeably surprised. My average crop from all the land I have sown has not been satisfactory, a good deal of it was unfit for hemp, many acres indeed were not worth pulling, other fields on the contrary yielded more than I ever expected from them. I will give you a statement of the crops of one of my farms for three succeeding years. The land has not been surveyed, but I am convinced it does not exceed eighteen acres. From this land I made in the year 1808, 16,500 wt., in 1809, 16,000 wt. and in the year 1810, 12,100 wt. The deficiency of the crop of last year, I ascribe to the extraordinary drought of the last spring.—The result of this experiment was the more satisfactory, as it enabled me to make an accurate comparison between the produce of hemp and tobacco on the same land.—In the year 1807 I had all the land (and about thirty thousand hills more) in tobacco that I afterwards sowed in hemp. That part of the land which was sown with hemp, had brought a fine crop of tobacco, and yet I made more pounds of hemp from it alone, than of tobacco (with the product of the additional thirty thousand hills included) with less labour, and less interference with the wheat and corn crops. This experiment I deem very satis-

factory and conclusive in favor of hemp. On another farm, I made last year, twelve thousand weight of hemp from about 25 acres, of which, five acres at least were not worth pulling, and that I have this year, either thrown out of the culture or manured highly.

4th Query. What is the best mode of steeping or watering, and whether you have tried the French process by hot water and soap?

Answer. This question I have purposely delayed answering, because it is one of great difficulty, and my own experiments do not afford me very satisfactory means of solving it. In 1808, when I made my first crop of hemp, I was entirely ignorant of every mode of managing it. I thought it safer to adopt the method that had been practised, in the small way, in this part of the country, where hemp had long been raised, by some people, for making rope for the use of their plantations, and to familiarise my people to the culture before I ventured on any innovation. The inducements to water-wretting are strong, the hemp is said to be better, and of course commands a better price; I therefore felt considerable anxiety on this subject. The French process appeared to me impracticable on a large scale, for the bulk of hemp when good, from 70 to 89 acres of land is immense. The streams convenient to me, were objectionable; liable to be suddenly raised so as to endanger the hemp, by carrying it off, or to injure it by making deposits of mud. I therefore availed myself of a wide and deep ditch at the foot of a hill which I enlarged, and where I had a perfect command of water, being able to let off or on at pleasure. I was pleased with the situation, and made it large enough to hold as much in the stalk as would yield about 800 or 1000 wt. of clean hemp. In this place I have tried water wretting two years, the result has not been very satisfactory; the labour of putting in, taking out, drying and securing, is very great and unpleasant.—The hemp managed in this way is more tedious to break—my people cannot break more than half as much water wretted, as of dew wretted, and my observations induce me to believe that the loss is much greater. I believe, also, that in one respect, the hemp is injured, by breaking the fibre of the bark. From a small experiment that I made last year, of wretting hemp in the river, I am inclined to suppose, that where it can be immersed in large volumes of water (free from the risk I before mentioned) the object would be accomplished with more certainty. I think that in my ditch or pond the quantity of water is insufficient for the hemp. The water-wretted hemp I have sent to market, has certainly commanded a readier sale and higher price than dew wretted; but I question if I have been more than reimbursed the extra labour, and loss of hemp in the way I have managed it. I would not have you infer from this, that I mean to abandon water wretting, or that I am prepared to say it is not the most eligible mode of managing hemp. My opinion of the loss is conjectural, and I will, the ensuing fall make some experiments to ascertain the matter with precision; if I succeed in watering it properly, I feel almost convinced that the difference will be found not to exist in breaking at least; this, however, I deem of small consequence, as I am satisfied that we shall soon break our hemp by machinery, that will very much diminish the labour—my experiments in water-wretting, shall be very much diversified, as I am still sanguine in my expectations that I, or some other person, will succeed in discovering the right method. Should it be my good fortune, it will give me real pleasure to communicate the result to you, and to my other countrymen through the Richmond Agricultural Society, to which I intend to present a copy of this letter.

The most unpleasant labour in the hemp crop, and that which presses most, is pulling—to pull a quarter of an acre is said to be a day's work for a man.—In the Western country it is cut with a knife or hook, and it is said to be as easy to cut half an acre as to pull a quarter. This is important in two points of view—it saves labour, and will enable you to double your crop of hemp; for the crop of hemp a man can make is limited only by the land he has proper for its production, and his ability to save it in due time.

It is easy to sow, to wret and to break much more than it is practicable to manage in the season of harvest. It is true that cutting will occasion some loss of weight, but I am convinced the hemp will be more valuable. The bark of the root disfigures the appearance of the hemp, and cannot be spun to advantage with the finer part of the bark of the stalk above the root. Most of the roots indeed are broken off and lost by the break.

Hemp seed is made by suffering a part of the crop to remain until it is ripe, or by drilling it and cultivating it like corn, taking care to pull up in good time, the stalks that will not bear seed.

I will take the liberty to add to this letter, long as it already is, a comparison between the labour necessary for a crop of hemp and a crop of tobacco, from which it will be obvious, that the former interferes less with other crops, and requires, likewise much less labour. It is known that hemp does not exhaust the land; while growing, it shades it completely; it prevents it from washing; deposits a considerable quantity of leaves and farina, and if the herbs be used in a farm yard, their absorbent properties render them an excellent material for manure. Upon a plantation of 500 acres of open land, on which from 90 to 100,000 tobacco plants are cultivated, ten hands must be employed all this year: this crop, with as much corn as will support the plantation, and ten bushels of seed wheat to each hand, is as much as can be managed, with the utmost industry and attention, and every facility that can be derived from good team and implements of every sort.—The produce of this labour when applied upon good land, I estimate as follows, and this I know to be above a fair average.

1500 lb. of tobacco at	\$6 is 90
100 bushels of wheat	100
	190
\$190 to each hand is for ten hands	1900
Deduct for the amount of hire of each hand, taxes, maintenance and tools, \$80 each, on a farm of equal size	800
Balance,	Dollars 1100

I would sow 120 acres in wheat, chiefly on fallow and would expect 15 bushels to the acre 1800
18 acres in hemp at 500 lb. to the acre is 9000,
a 10 cents 900

This crop would be managed with six hands, for expenses deduct 80 each 480

Balance, Dollars 2220
I believe the above to be a fair estimate. I am convinced I can make more pounds of hemp than tobacco upon the same land, and that it is worth more. I refer to the state of the market for an average of years. That more land can be cultivated in wheat with a hemp than with a tobacco crop, is demonstrated by its being shown that hemp and wheat never require the planter's attention at the same time; whereas it is notorious that in harvest in the threshing and seeding, and in the preparation for seeding, great attention is necessary to the tobacco crop; that the land is less injured, can be better prepared, and more of it manured, is equally obvious. But to put this out of all doubt, I subjoin the following statement to show the number of day's work required to make each crop and the season when the labour is performed. I do not take into the estimate the time that is required to break or prepare the land for hemp, because precisely the same preparation would be advantageously bestowed upon the land that is to be planted in tobacco, and I have not noticed the ploughing the tobacco.

Time necessary to cultivate a crop of nine thousand tobacco hills, by one man, estimated in days work, Preparing, burning and seeding plant patches, nine days, January and February
Hilling, turning and cutting off 20 days, April and May

Planting and replanting four days, May and June.
 Weeding and hilling twice, 15 days, June and July.
 Topping, 5 days, July.
 Worming and suckering, 24 days, Aug. and September.
 Cutting, housing and curing, 16 days, Aug. and September.
 Stripping and prizing, 20 days, Fall and Winter.
 Total, 113 days,
 The same as to three acres of hemp.
 Pulling 12 } August.
 Picking up 3 }
 Spreading 3 } November.
 Picking up 3 }
 Breaking 18 } March and April.

39 days.

In this estimate I have said nothing of clearing land for tobacco, which precludes every other improvement, and unless tobacco is made upon new land, an average crop of 1500 to the hand ought not to be expected. Upon old or manured land, hemp is a more certain crop than tobacco. Manured land is best for hemp—every man who can manure an acre of land (and every man might do much more than that) may keep up a crop of three acres to the hand, as land that is manured, will continue to bring good hemp for more than three years, and after hemp, as after tobacco, you may expect a fine crop of wheat.

I fear you will think you have cause to lament engaging in a correspondence with a man who has so little consideration as to give you the trouble of reading a letter of the length of this. My apology must be my desire to be useful. I would not have troubled you with observations on the tobacco crop, but for my knowledge that much tobacco is made in your state, and believing it is a rational object that the labour of every man should be employed to the most advantage; it occurred to me that it might be useful to make the comparison that I take the liberty to present to you, although it did not fall within the scope of your enquiries.

I am respectfully,
 Sir,

Your humble servant,

WILSON CARY NICHOLAS.

William W. Rodman, Esq.,
 Washington, N. C. }

MANUFACTURES.

For the American Farmer.

MR. SKINNER—I peruse your very valuable numbers, with great satisfaction, as they contain more interesting and valuable matter, than is to be found in any other weekly paper, which has fallen under my notice; yet I find in them some publications, the truth and propriety of which I can neither see or assent to—I allude to those addresses to the *Southern Agricultural Societies*, in which the speakers take notice of the lately proposed Tariff—as being calculated to place the manufacturers at the head of the numerous classes of *Labourers*; particularly above the cultivators of the soil. In short, to render the Manufacturers a *privileged order*, granting them a monopoly, as against, not only the cultivators, but also against the merchants and ship owners—In fact as a tax on the *many* for the benefit of the *few*.—Now, Sir, I am not foolish enough to undertake to discuss the subject of the proposed Tariff, in all its parts and bearings, but I fearlessly maintain that an attempt by our government to protect manufactures, by judicious

regulations (not merely with a view of aiding the revenue) would be both wise, proper and patriotic—I consider, that the farmers or planters (as relates to the Southern cultivators) are no more *Antipodes*, (as to their separate interests) to the manufacturers; or the manufacturers to the farmers, than they are as it respects their *local situation*—what benefits one class, must equally benefit the other. All must rise or fall together. It is true that the cultivators of tobacco and cotton wool, can better sustain themselves than the cultivators of Indian corn and wheat—than any of the numerous and various labourers and cultivators of the soil, in the middle, northern and western states—or the merchants and ship owners of those sections of the Union—the British merchants and *venue masters* only, excepted. And I simply request that the Southern planters and farmers will recollect, that although they may not sink into entire insignificance under the strange infatuation, of being *let alone*; of being permitted to buy of whoever will sell to them, what they want to purchase cheapest: yet their brethren of the northern and western states must become wretchedly poor under such a system, as long as the European governments, wholly, or nearly so, reject all their products. It is pretended, that those governments are sick of their restrictive measures: and, therefore, it would be the extreme of folly for our government to extend our restrictive measures: when they are so sick of theirs. But, Sir, I deny that we have any evidence that any of those governments are sick of their restrictive measures—that is, as to *foreigners*—it is true, that the merchants of Great Britain wish that the East India trade—particularly to *China*, may be thrown open to all the subjects of *Great Britain*, against the monopoly of the East India Company. Some of the manufacturers and ship owners, wish their *corn laws* repealed, that the people might get bread, &c. on more reasonable terms: but it is well known that the *Land proprietors*, like the *great Southern planters* with our government, have too much interest and influence with that government, to permit any relaxation in respect to their corn laws. As to all the other European governments, their restrictions are as rigorous as those of Great Britain—in some instances more so; and are of so recent a date, that no hopes can be entertained of their abandonment. I am aware that all these observations may have been, before, often made; but as often as the *hue-and-cry* is reiterated against *manufacturers* and the *tariff* as designed to tax the many, (the consumers) for the benefit of the few (the manufacturers) it seems proper that a protest against this absurdity should be repeated—and the same arguments, if such these observations may be called, should be restated.

I beg leave, Mr. Editor, through the medium of your paper, to ask the good people of Virginia, the two Carolinas and Georgia—together with those of Louisiana, Alabama, and Florida—how the United States are to be supported—in all these middle, northern and western (that is over the mountains) states, are left to struggle with the restrictive measures of all the Eu-

ropean governments—who shut out all their products, except pot and pearl ashes—their staves and flax-seed? The northern people must have more clothing—more articles of consumption of every kind, than what will be necessary for an equal number of labouring people in the southern states. This arises from the *climate* and the *kind of inhabitants*—one being a great portion of them *slaves*—the other principally *free-men* and *yet labourers*—and some of the states wholly of free-men. If these are suffered to be oppressed by *foreign regulations*, it is manifest they cannot pay much *impost* for the support of government. Can the southern states, who support the government of the Union? So inquires

A NORTHERN MAN.

TIMBER.

To the Editor of the American Farmer.

MR. SKINNER.—The valuable communications of Commodore Porter, upon the subject of Timber and its preservation, have evinced that the Commodore is worthy to fill the high and responsible station in which he has been placed; he has given salutary warning—his duty upon this subject is performed—those who possess the soil of our country, who feel for our weight and dignity as an Empire, should avail themselves of the information they have received—they should do their duty—our country expects it. If every landholder would set apart but two days in a year, to the planting of Locust, Mulberry and Oak, it would be found that in 50 or 100 years timber would be better, and more abundant than it now is.—The farmer who only makes his calculations and arrangements, with a view to his particular interest, would find it much to his account, to have a small nursery for drilling (in the manner of peas) the seed of the Locust, from which he could transplant every year; this is the most durable wood, and invaluable for ship building and farming purposes, and is known to do no injury to the neighbouring crop. Chesnut might also be planted in small orchards, say one acre in 100, which would give abundance of fencing, and thereby enable many farmers to bring into cultivation, large bodies of land, now in *scattered wood*, and from its pillaged state, of very little value. I know many farms of 1000 acres, that have 3 or 400 acres of what is called wood land, that would not give as much timber of good quality, as half a dozen acres of chesnut would—but to “take a bond from fate,” let them for convenience sake, have two acres of chesnut to each 100, and place an acre at each extremity—this I am persuaded would be fully equal to any live fence—it would beautify the country, and the woodland might then be devoted to such timber as would serve the purposes of the Navy. The bad and unsound growth would be sufficient for fuel—my remarks as relate to the Navy, will apply only to that portion of country, where the price of timber will pay the carriage and give a profit. It may be said that this is very pretty upon paper—that something should be done where the weight and dignity of the country is concerned, is admitted by all.—Would it not be wise, Sir, for all to say that a

law should pass to enforce some regulations, productive of this good and national end? Is it not *general good*, that induces us to pass laws for the preservation of morals and the protection of property? Let me ask, what would now be the state of our agricultural interests, if early provision had not been made for its protection, as was made for the protection of morals? You may lash men and women too, Sir, into the best moral appearances in a short time; but, Sir, who can put us in possession of our Ship Timber and our fat land again? We ring the nose of a hog that destroys his own pasture, yet the man who destroys the inheritance of our Heavenly Father, to all his children, does nothing worthy of punishment—deface a mile stone, and you are fined—gully, impoverish and destroy as much of the inheritance of the human family as you please, and you do no more than exercise the rights and privileges of a freeman—Experience has taught us much, but great is that which we have yet to learn. The oak is not yet planted, that shall buoy the fearless sons of this mighty Empire through enterprises, corresponding with our developments. Time and experience will teach individuals, that their interest is the same as that of the Nation.

Very respectfully,

A VIRGINIAN.

FOR THE AMERICAN FARMER.

On the Culture and best distances for planting INDIAN CORN.

SIR,
American writers upon agriculture, most generally have declared open war against the cultivation of the invaluable Indian Corn or Maize, and almost without an exception recommend, that we should not cultivate our usual quantity, but increase our crops of wheat and grass.

If, by their instructions, they mean to prevent us from wasting our time and labour upon poor lands, under bad management, they are right; but, it is my opinion, that we cannot grow too much of a grain, which, when we consider the various uses to which it is applied, the convenience and economy with which it may be fed, may be justly esteemed a blessing to our happy country, beyond all other grain. It does not, indeed, sell for as much per bushel as wheat, but for nearly as much as rye—and, as a food for stock, it is more valuable than either. That it is a profitable crop to the grower, I give one fact in evidence: enquire of any intelligent country merchant, and he will inform you, that the good corn farmers are the money-making farmers—and we all know that to this precious grain we are indebted for fat horses, fat oxen, fat beeves, fat hogs, fat poultry, and contented servants. One year with another, the fair price of corn is about half the price of wheat, and this value seems to be governed more by the produce, than by intrinsic value. The land which will produce five bushels of wheat to the acre, will produce ten bushels of corn; if twenty of wheat, forty of corn, and so on, in nearly the same ratio; with this difference, however, that in some few situations,

good wheat land will not produce heavy crops of corn, while, in extensive districts, first rate corn land will not produce heavy crops of wheat.

The farmer, who attempts a crop of corn, must plant early, and cultivate with care and diligence, never suffering grass or seed to gain possession, nor the land to become baked, or, with a hard crust, however clean it may be; but these principles are so universally understood, that any further remarks from me are unnecessary, and I proceed to what is not so generally agreed upon, the best distance at which to plant.

Although we may have a good or bad crop upon an equal number of stalks, yet it is reduced to certainty, that a great crop cannot be made without a great many stalks, and when I hear of eighty to a hundred bushels to the acre, I am convinced that such great produce is not merely owing to a fortunate season, and good tillage of good land, but also to the fact, that more stalks have been grown upon the acre, than is customary with us in Maryland.—Impressed with this opinion, I have made various experiments to ascertain that distance which will unite most advantages with the fewest disadvantages, where wheat or winter grain is sown among corn, and have at last settled down to rows seven feet wide, and two feet apart in the row.

This is called drill planting, step corn, or nit and miss corn, a mode of planting occasionally practiced time immemorial. Two feet is the natural and easy military step, which the dropper soon acquires to great exactness.

Our corn fields are upon a large scale, and most generally small grain is sown among the corn. We will take a field of 250 acres, and suppose it a square, which will give us 200 perches each way.

At 7 by 2 feet you have in this field,

The almost universal distance with us is 4 feet 6 inches each way, and which gives to us

Difference,

But this is not the only difference, it is well known, that very little wheat is grown in the furrow or clearing out of corn ground, even upon prime—and upon weak land, what little does grow cannot be saved.

Your field then being 200 perches square, at 4 feet 6 inches contains

while at 7 feet there is but

Difference

which, allowing one foot in width to each furrow, makes a difference of twenty acres, or one twelfth less of wheat. The cross tillage wastes yet more, and in particular on flat land—for at the angle of every crossing, a cup is formed, which not only retains superfluous water, but at which the soil is deteriorated by frequent ridging up the good soil, and by the frost retained in that cup.* There is an advantage in seven feet

* On corn ground, the best wheat is on the ridge, the worst in the furrows, and a medium at the angles of crossing.

drills, beyond the points enumerated—nine feet the cut of a wheat cradle, taking two lands of four feet six inches each, is too great a sweep, except for long armed, skilful, and willing cradlers. Nineteen times out of twenty, the wheat is so scooped out, as to cut off the heads at the pointing in and out, with so little straw attached, that a vast proportion of grain is lost. Upon an average of lands, a seven foot sweep is enough for clean work—and, if you must hurry, (which is in no case prudent) you step longer, and strike deeper in.

If my remarks meet your approbation, you shall hear further from

Your obedient servant,

F.

23d Nov. 1821.

Does not our experienced and much respected correspondent consider it better husbandry, to remove the corn, stalk and all, *before* the wheat is sowed?—an operation which is now necessarily delayed to avoid the ravages of the fly—or, does he consider that under general circumstances, such removal of corn and stalk is impracticable? Again—Suppose a system of cultivation on a small field where the corn is to be removed before sowing: at what distance would he then plant. We are always so much pleased when we can get our friend F. afield, let the object in pursuit be what it may; that we now take leave to ask his opinion, whether it be the better plan to select seed-corn from stalks bearing the greatest number of ears, or to take it carefully from such as bear but one large one. In the former case the number of ears would, in process of time, be doubtless, greatly increased—query, would the quantity of grain be?

Edit. Am. Farmer.

To the Editor of the American Farmer.

SIR,
The day being cold and rainy, with the wind at N. E. my horses at their cribs in the stable, and cattle under good shelter in the barn yard; some of my hands employed thrashing out grain—some cutting straw with my patent cutting knife—others shelling corn with my patent corn sheller—some making axe helves, rake handles, &c. &c.—and all in some way employed, I determined to pass a social morning, chatting with my old aunts, who were sewing and knitting by a comfortable fire, with their maids at work in different parts of the room—some picking wool, some carding, while others were whirling around the good old fashioned big wheel, the only musical instrument in the family, except the horn which calls the workmen to their meals; all, in fact, were in some way or other employed, except myself—and the noise of the wheel, and other operations going on, not permitting me to read aloud, as is my custom, the American Farmer, the Agricultural Almanack, &c. I took out my tooth-pick, and seating myself before the fire, in my old arm chair, began to pick my teeth: after meditating some time, pray, said I, addressing my aunt Deborah, pray said I, can you tell me why people complain so much about hard times? Our crops have been as abundant as they have ever been; our lands are more productive than formerly—and, if their produce when sold will not bring so much as they did a few years back, we have less to pay for the articles we purchase—this undervaluing produce of the land, and reduction in the prices of tea, sugar, coffee, cloth, &c. one

would think would make times for farmers better instead of worse; what is the reason then that people, and particularly farmers, complain so much of hard times?

"My dear nephew," said the old lady, laying down her knitting, raising her spectacles from her nose, and gravely and deliberately taking a pinch of rappee, always the precursor of some good remark, as the time of taking the snuff is a time for reflection;—"My dear nephew," "times in reality are no worse than they were before, but the imaginary wants of people, caused by the introduction of new fashions, and new ways to gratify vanity, have made them appear so; the profits of my pantry have for many years supplied my ward-robe—but I wear no Leghorn bonnets at 30 or 40 dollars a piece," (cutting her eye at aunt Simplicity, who had once laid out all her savings on one, when she wanted to catch my friend Charley); "our knitting and our spinning turnish for the family, clothing of a more comfortable kind than broad cloth—turning her head towards my Sunday coat which was hanging on a peg—our butter, our cheese, our calves, and our pigs furnish us with gowns. There is nothing more wholesome than cyder and parson beer,"—(here my aunt asked for a glass of rattiee, as she had, she said, a touch of the cholic);—"the skins of our cattle furnish us with shoes without the aid of prunella and kid—our beeves and our hogs furnish us a food superior to anything foreign—the produce of our fields furnishes bread for ourselves, and food for our stock, and wherewithal not only to pay the hire of hands, but our taxes, and enables us to lay up a little at the end of the year. We have no more cats than can catch mice, and no useless mouths to feed—the Simples have always lived as we live, and have always made out to make both ends meet—we have never had more wants than we had means of gratifying; we, therefore, have never felt hard times."

Look now at our neighbours the Simpletons, their farm is only one fourth the size of ours—it was purchased on credit, and mortgaged to raise the means of improving it, that is, building a fine house. The old gentleman and his wife, they have their coach and pair, the young squire he has his nag for his special use, and the two young misses Amarilla and Angelica Simpletons, have each their palfrey—and all this, including the coachman, footman, &c. are exclusive (I was going to say independent) of the farming establishment. They are eternally on the road, or at the manger, visiting or entertaining friends to the neglect of their business, and consuming the produce of the farm with out making any return. Now we will not take into calculation the expense of saddles and bridles, harness for horses and livery for servants, Legions, and feathers, marinos and Cashmeres, frills and turbelous, corsets and stilliners, dandy coats, and Cossac trowsers, port wine and Madeira, Imperial and gun powder, Mocca and double refined, plumb cake and pound cake, with a thousand other *et-ceteras*; we will merely make our calculation of the expense of the aforesaid five horses, which are

preferred, to the impoverishment of every other animal on the farm, if that can be called one, which is very little better than a neglected waste.

To make a comparison, we must have something to compare with—we will take a man. We will make a comparison between the consumption in food of a horse and man.

In Virginia, a peck of corn meal per week is considered an allowance for a negro. A well fed horse will eat a peck of corn a day, besides hay to an equal amount. A horse then eats as much in one day as will supply a negro two weeks; then the expense of feeding one horse is equal to the expense of feeding fourteen negroes—consequently the expense of feeding the five extra horses on neighbour Simpleton's farm, is fully equal to the expense of feeding seventy negroes: besides this, the horses must have more to take care of them, who must not only be fed, but be clothed too, and their feed and their clothing alone, would be sufficient to pay all the expense of the farm, was it managed as it ought to be. But the farm does not produce enough to pay the hands, occasional loans must be had from the bank to obtain means of buying linery for the girls, paying off the young gentleman's taylor bills, the old gentleman and lady too ran up a bill where they can obtain credit, pay day comes round, creditors will be satisfied, interest on interest is accumulating, nothing coming in, ruin staring them in the face, no efforts made to retrench—and the constant cry is "hard times!! hard times!!"

By this time the storm had cleared off, and recollecting that I had in stable one horse—(though a favorite of mine) which might be done without, I went out, to give orders that he should be sent to town and sold next day.

JEREMIAH SIMPLE.

P. S. A learned friend of mine, a farmer, lately sent me some "native cotton, the spontaneous growth of his farm." I was much pleased with it, and gave it to my aunt Simplicity to spin: she tried and tried over and over again, but could make nothing of it—at length aunt Deborah asked for it to look at; she first examined the cotton, then the seed, next the pod, and next the stalk and leaf. Pray, said she, who sent you this? "Why Mr. so and so." What does he call it? "Cotton, cotton!" Now my aunt is a great lover of the poets, and sometimes quotes them. So placing herself in one of her poetical, or granny attitudes, says she "tis what"

"The learned Cotton, unlarned Milk Weed calls." And threw the whole of it in the fire. J. S.

FOR THE AMERICAN FARMER.

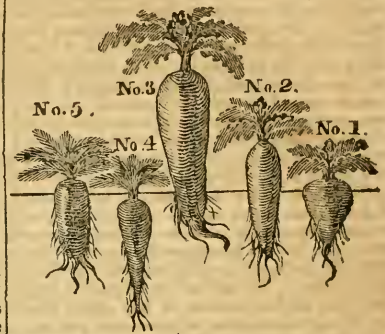
Mangel-Wurtzel, Carrots, &c.

Baltimore County, Nov. 30.

SIR,—

I procured the seeds of several varieties of Mangel-Wurtzel, and Carrots last spring, for field cultivation, in consequence of the communications which have appeared in your journal respecting the value of different root crops; could only obtain four parcels of Mangel-Wurtzel seed, although I sought for them in many places, in the hope that some of them

might prove to be of the genuine variety. The roots produced by two of these parcels of seed were of a coarse character, much alike, wide at the top, grew almost wholly in the ground, and tapered rapidly to a point, as represented by figure 1, in the annexed drawing. The



roots of the third parcel were larger than those of the two first; they grew about one half above the ground, and retained their size pretty well within the soil, as shown by figure 2: but the roots of the fourth parcel of seed, and which was obtained from Mr. E. S. Thomas, Baltimore, accord precisely with the description given by writers of the genuine *Mangel-Wurtzel*: they grew from twelve to eighteen inches above, and from three to five inches below the surface of the drills; at the top they were as large as either of the other kinds, and maintaining their greatest size quite to the ground, they were full at the termination, as represented in figure 3.

The leaves on all were very abundant, and were stripped off the plants five times in the course of the summer. From the small spot where the best kind grew, and which does not exceed the fifteenth part of an acre, I obtained four cart loads of trimmed roots, that measured thirteen bushels each; or, at the rate of seven hundred and eighty bushels per acre! This ground was in good tilth, and two small cart loads of unrotted manure were distributed in the drills. I thus obtained a better return from it, planted with Mangel-Wurtzel, having reference to the quantity, or quality, or both, than the same space has ever yielded me before, which inclines me to believe that the Mangel-Wurtzel is better adapted to our climate than any other root—an opinion which has heretofore been well maintained in the American Farmer. Persons who wish to cultivate this crop, to any extent, should first obtain seed which they know to have been carefully saved from roots of the proper sort, then select a piece of good land for the purpose, & make it thoroughly rich, by manuring it broad cast, and also in the drill. With this management I am satisfied they will obtain a greater and more valuable produce for the sustenance of cattle, sheep and swine, than could be made in this neighbourhood by any other means. And by the drills being two and a half feet apart from centre to centre, intermediate rows of turnips may be sown to great advantage, late in July or early in August, as they

* Parson's about smoking don't forget.

would then have time enough to mature before the setting in of severe frost. A double crop might thus be made in one season from the same ground, with scarcely any more labour than either would require, and without incurring the hazard of loss, which so often occurs when we depend entirely upon the turnip crop for a winter's supply of succulent food.—The Mangel-Wurtzel is in itself a very sure crop, but should it fail in places, these may be filled up with cabbage plants, or subsequently with turnips, so that we may with certainty count upon a full, although it may be a mixed crop. It has also occurred to me, that the Mangel-Wurtzel might be profitably cultivated in corn fields, for I believe the shade of the corn would not retard its growth, and the cultivation required by that crop would leave nothing to be expressly done to this, except in the earliest stage of its growth, when the plants should be thinned, and the drills cleared of weeds.—It would be well however to test this opinion, upon a small scale, before any other reliance is placed upon it—and I recommend that the rows of corn should be six feet apart, and the root drills in the centre.

Of Carrots.—I obtained seeds of two kinds, the long orange; and the short, or horn, or stock carrot. The first is a kind very commonly cultivated, the roots of which attain a good size, as shown by figure 4. But the second, or short kind, cultivated in the same manner, yielded me more than twice as many bushels from an equal quantity of ground, although these were sown some weeks later than the other, and both crops gathered at one time. The short carrot is better flavoured and more delicate than the long. I should be satisfied to cultivate it as a crop for cattle, having reference not only to its quality, but likewise to its acreable produce. Its form is correctly represented by figure 5.—and the seed of it which I used, was bought of Mr. E. S. Thomas, Baltimore; from whom I shall have to get some more next spring, but thereafter I shall have enough of my own raising, which, from experience, I prefer to those of the shops. And that you may have it in your power to distribute some seed of the true Mangel-Wurtzel, and this approved carrot, for cultivation in the spring of 1823, I will take the liberty of sending you two dozen roots of each of those plants.*

I have, for the last four years, raised the Ruta Baga, the white Norfolk, the yellow bullock, and the red tankard turnips, but not with uniform success. The first and fourth years I sowed the seed on good grass ground, which had been pastured close for two years previous. & I gathered good crops of each kind. The 2d year I sowed after oats, the 3d year after wheat, having first ploughed in the shattered grain, and allowed it to vegetate before I ploughed for turnips; but in these years I had very indifferent root crops, although the ground was rich and heavily manured after harvest. I have heretofore sowed but a small proportion of my turnip ground with Ruta Baga seed, as I only expected to raise enough of it for my family's use—for I was always disappointed in their

* We will thankfully receive the promised roots, and take great pleasure in raising, saving and distributing their seeds.

Editor Am. Farmer.

growth when I sowed the seed in June, or early in July and I considered it too late to sow them after those periods as a crop for cattle—they take so much longer to mature than other turnips.

Next year I will endeavour to cover three acres of rich ground with the true Mangel-Wurtzel and short carrot, in alternate drills, with rows of turnips between them; I will then invite the editor of the American Farmer to do me the favor to come and find fault with my labor as he may—and I will requite one good turn by doing him another.

Very respectfully,
Your's, &c. M. N.

Olives, Capers, Figs.

From Doctor James Mease's "ARCHIVES OF USEFUL KNOWLEDGE."

[The acquisition of the Floridas, augments the interest of that portion of the following letter, which relates to the Olive—since it is acknowledged that a large part of that territory is adapted to its cultivation.]—Edit Am. Farmer.

The following letter on the cultivation of these fruits, was addressed by Mr. Jefferson while minister of the United States at the Court of France, to the Agricultural Society of South Carolina, and published by them in 1788.

Paris, July 30, 1787.

"I was induced, in the course of my journey through the south of France, to pay very particular attention to the objects of their culture; because the resemblance of their climate to that of the southern parts of the United States, authorizes us to presume we may adopt any of their articles of culture, which we would wish for. We should not wish for their wines, though they are good and abundant. The culture of the vine is not desirable in lands capable of producing any thing else. It is a species of gambling, and of desperate gambling too, wherein, whether you make much or nothing, you are equally ruined. The middling crop alone is the saving point: and that the seasons seldom hit. Accordingly we see much wretchedness amidst this class of cultivators. Wine too is so cheap in these countries, that a labourer with us, employed in the culture of any other article, may exchange it for wine, more and better than he could raise himself. It is a resource for a country, the whole of whose good soil is otherwise employed, and which still has some barren spots, and a surplus of population to employ on them. There the vine is good, because it is something in the place of nothing. It may become a resource to us at a still earlier period, when the increase of population shall increase our productions beyond the demand for them, both at home and abroad. Instead of going on to make an useless surplus of them, we may employ our supernumerary hands on the vine. But that period is not yet arrived.*

* This reasoning applies very forcibly to the Atlantic States, but at the time the above excellent and patriotic letter was penned, the Western States except Kentucky, were not settled. In those states wine is now made to a profit, from European grapes, by two colonies of Swiss; and also at Harmony, near Pittsburgh by a settlement of Germans. See Cumming's Tour. Our native grapes would supply much better

The almond tree is also so precarious, that none can depend for subsistence on its produce, but persons of capital.

The caper, though a more tender plant, is more certain in its produce; because a mound of earth, of the size of a cucumber hill, thrown over the plant in the fall, protects it effectually against the cold of the winter. When the danger of frost is over in the spring, they uncover it, and begin its culture. There is a great deal of this in the neighbourhood of Toulon. The plants are set about eight feet apart, and yield one year with another about two pound of capers each, worth on the spot six-pence sterling the pound. They require little culture; and this may be performed either with the plough or hoe. The principle work is the gathering of the fruit, as it forms. Every plant must be picked every other day from the last of June till the middle of October. But this is the work of women and children. This plant does well in any kind of soil, which is dry; or even in walls, where there is no soil; and they last the life of a man. Toulon would be the proper port to apply for them. I must observe that the preceding details cannot be relied on with the fullest certainty; because in the canton, where this plant is cultivated, the inhabitants speak no written language, but a medley, which I could understand but very imperfectly.*

"The fig and the mulberry are so well known in America, that nothing need be said of them. Their culture too is by women and children, and therefore earnestly to be desired in countries, where there are slaves. In these the women and children are often employed in labours disproportioned to their sex and age. By presenting to their master objects of culture, easier and equally beneficial, all temptation to misemploy them would be removed, and the lot of this tender part of our species be much softened. By varying too the articles of culture, we multiply the chances of making something, and disarm the seasons, in a proportionable degree, of their calamitous effects.

"The olive tree is the least known in America, and yet the most worthy of being known. Of all the gifts of Heaven to man, it is next to the most precious, if it be not the most precious. Perhaps it may claim a preference even to bread, because there is such an infinitude of vegetables, which it renders a proper and comfortable nourishment. In passing the Alps at the Col de Tende, where they are mere masses of rock, wherever there happens to be a little soil, there are a number of olive trees, and a village supported by them. Take away these trees, and the same ground in corn would not support a single family. A pound of oil, which can be bought for 3d. or 4d. sterling, is

wine than what is transported from the Seaports; and every industrious farmer might supply his own table with the article, at one-fourth the cost of imported wine, and yet not encroach upon the business of the farm.

Editor of the Archives.

* Until the true caper shall be imported, the common garden Nasturtium, *Tropaeolum majus*, which by many are preferred to capers, might be cultivated. In the Philadelphia market great quantities are annually sold to excellent profit, for pickling.

Editor of the Archives.

equivalent to many pounds of flesh, by the quantity of vegetables it will prepare, and render fit and comfortable food. Without this tree the county of Provence, and territory of Genoa would not support one half, perhaps not one third, of their present inhabitants. The nature of the soil is of little consequence, if it be dry. The trees are planted from 15 to 20 feet apart, and when tolerably good will yield 15 or 20 lb. of oil yearly, one with another. There are trees, which yield much more. They begin to render good crops at 20 years old, and last till killed by cold, which happens at some time or other, even in their best positions in France; but they put out again from their roots. In Italy, I am told, they have trees 200 years old. They afford an easy, but constant employment through the year, and require so little nourishment, that, if the soil be fit for any other production, it may be cultivated among the olive-trees, without injuring them. The northern limits of this tree are the mountains of the Cevennes from about the meridian of Carcassonne to the Rhone; and from thence the Alps and Appennines as far as Genoa, I know, and how much farther I am not informed. The shelter of these mountains may be considered as equivalent to a degree and an half of latitude at least; because westward of the commencement of the Cevennes, there are no olive trees in 43°, or even 43°, of latitude; whereas we find them now on the Rhone at Pierrelatte in 43½, and formerly they were at Tains, above the mouth of the Isere in 45°, sheltered by the near approach of the Cevennes and Alps, which only leave there a passage for the Rhone. Whether such a shelter exists, or not, in the states of South Carolina and Georgia, I know not. But this we may say, that either it exists, or that it is not necessary—because we know that they produce the orange in open air; and wherever the orange will stand at all, experience shows the olive will stand well, bring a harder tree. Notwithstanding the great quantity of oil made in France, they have not enough for their own consumption, and therefore import from other countries. This is an article, the consumption of which will always keep pace with its production. Raise it, and it begets its own demand. Little is carried to America, because Europe has it not to spare, we therefore have not learnt the use of it. But cover the southern states with it, and every man will become a consumer of it, within whose reach it can be brought in point of price. If the memoir of those persons is held in great respect in South Carolina, who introduced there the culture of rice, a plant which sows life and death with almost equal hand, what obligations would be due to him, who should introduce the olive-tree, and set the example of its culture! Were the owners of slaves to view it only as the means of bettering their condition, how much would he better that by planting one of those trees for every slave he possessed! Having been myself an eye-witness to the blessings which this tree sheds on the poor, I never had my wishes so kindled for the introduction of any article of new culture into our own country. South Carolina and Georgia appear to me to be the states, wherein its success, in favourable

positions at least, could not be doubted; and I flattered myself, it would come within the views of the society for agriculture to begin the experiments, which are to prove its practicability. Carcassonne is the place, from which the plants may be most certainly and cheaply obtained. They can be sent from thence by water to Bourdeaux, where they may be embarked on vessels bound for Charleston. There is too little intercourse between Charleston and Marscilles to propose this as the port of exportation. I offer my service to the society for the obtaining and forwarding any number of plants, which may be desired.

"Before I quit the subject of climates, and the plants adapted to them, I will add, as a matter of curiosity, and of some utility too, that my journey through the southern parts of France, and the territory of Genoa, but still more the crossing of the Alps, enabled me to form a scale of the tenderest plants, and to arrange them according to their different powers of resisting the cold. In passing the Alps at the Col de Tende, we cross three very high mountains successively. In ascending, we lose these plants one after another, as we rise, and find them again in the contrary order, as we descend on the other side; and this is repeated three times. Their order, proceeding from the tenderest to the hardest, is as follows; caper, orange, palm, aloe, olive, pomegranate, walnut, fig, almond. But this must be understood of the plant only: for as to the fruit, the order is somewhat different. The caper, for example, is the tenderest plant; yet, being so easily protected, it is among the most certain in its fruit. The almond, the hardest plant, loses its fruit the oftenest, on account of its forwardness. The palm, harder than the caper and orange, never produces perfect fruit here.

I have the honour to be, &c.

TH. JEFFERSON.

BONES.

From *Wille's Domestic Encyclopedia*.

Bones are very useful articles for making different kinds of toys, and also in several of the chemical arts, as for making cast iron malleable, for absorbing the sulphur of sulphurous ores, for forming tests and coppers, or vessels for refining gold and silver with lead; for burnt bones compose a mass of a porous texture, which absorbs vitrified lead and other metals while the unvitrescible gold and silver remain entire behind. They are used for the preparation of milky glasses and porcelains, for the rectification of volatile salts, and of empyreumatic oils, and for making glue. The bones of different animals are not equally fit for different uses. The bone of the cuttle-fish is used by goldsmiths for making moulds; those of bullocks for painters' black; also, in lieu of ivory, for toys and cutler's work. But the most important and beneficial uses to which bones may be rendered subservient, are those in rural economy.

Bones are an excellent manure, though not generally known; they should, however, not be calcined, as the animal matter will be dissipated by the fire. A. ST. Leger, Esq. had once laid down to grass a large piece of very indifferent limestone land, with a crop of corn; and from this uniformly well dressed piece he selected three rods of equal quality with the rest, and manured them with bones broken very small, at the rate of sixty bushels per acre. Upon the land thus managed, the crop was infinitely superior to the

rest. The next year's grass was also more luxuriant, and has continued to preserve the same superiority for at least eight years, inasmuch, that in spring it is green three weeks before the rest of the field. He also dressed two acres with bones, in two different fields prepared for turnips, at sixty bushels to the acre, and found the crops incomparably more productive than the others managed in the common way. Upon grass lands, he observed, that this kind of manure exerts its influence more powerfully in the second year than in the first. For whatever soil it be intended, the bone should be well broken, before they can be equally spread upon the land. No pieces should exceed the size of small marbles. To perform this necessary operation, he recommends the bone to be sufficiently bruised, by putting them under a circular stone, which being moved round upon its edge by means of a horse, in the manner tanners grind their bark, will very expeditiously effect the purpose. Although bones of all kinds may be used with advantage, yet those of fat cattle are doubtless the best; but unground bones should never be employed, as they are of little or no service to the soil. A. St. Leger has also found it very beneficial to mix ashes with the bones: a cart load of the former being put to thirty or forty bushels of the latter, and heated for twenty-four hours (which may be known by the smoking of the heap,) the whole should be turned. After lying ten days longer, this excellent manure will be fit for use. Lastly, Dr. Hunter remarks, that the best method of grinding bones, is that between two cast metal cylinders. And as mills are very rarely erected purposely for this operation, the apparatus may be added to any common water mill, at a very trifling expense.

[*Uses of a Dead Horse.*—We have a tolerably good poem on the life and death of a blood horse, "The high mettled racer," tracing his progress from being the favourite of the turf, through all the grades of hardships, till he is worn out with hunger, labour and blows, in the cart of the scavenger: I fear a faithful account, not much to the credit of British humanity; I will now trace the progress of a dead horse through all the stages of his posthumous utility, really to the credit of the skill and frugality of that most ingenious people, as economical manufacturers. When a gentleman's horse dies, the routine of disposing of the dead animal, is this. He is sent to the saddler, who gives credit for him at a guinea. The saddler gives notice to the currier, who has the horse conveyed to some repository for dead horses; where he is skinned, and the currier takes away the skin, leaving the carcass. The skin is depiled by lime, drest and tanned in the usual way; the offal of the skin cut off by the currier is sold to the glue maker: the offal of the leather during the process or after tanning, is laid by and sold to the makers of snuff-boxes, &c.

The dead horse, is a subject for dissection to young students in comparative anatomy, who pay for the license of going to the repository, a guinea a quarter. The flesh is then cut off, boiled, and sold to the people who hawk it about the streets of London in wheelbarrows, as cat's meat and dog's meat, at 1d. per lb. The hoofs, are sold to the makers of Prussian blue. The bones, are sold to two descriptions of manufacturers: 1st, to the makers of cart-grease, who reside at the outskirts of London, and boil the bones for the sake of the fat and marrow; which, when, cold is skimmed off, and mixed with an equal quantity of tar to make the composition necessary to grease carriage wheels. Or, 2dly, they are sold to the manufacturers of volatile alkali, who make spirit of hartshorn and sal ammoniac, out of them, by distilling in large iron cylinders. The bones, thus boiled down, used, in my time, to be sent back again to a steam mill near St. John's, Clerkenwell, where they were ground into a coarse powder, and sold as a top dressing for grain crops. T. G.]

Oil and Tallow,

How to purify both, and blanch the latter.

To one gallon of oil add one quarter of an ounce

of finely powdered chalk, one quarter of an ounce of air slacked lime, and one half pint of water; stir them well, let them rest three or four hours, then add one pint of water and two ounces of pearl ashes, and place them over a heat that will just keep them simmering, till the mixture appears of a light amber colour, and has lost all smell, except a hot greasy, soapy scent. Then superadd half a pint of water, in which one ounce of salt has been dissolved; and having boiled them half an hour, pour them into a proper vessel, and let them stand till the separation of the oil, water and lime is completed.

Dossie's Communication to the Society for the Encouragement of Arts—Vol. XX.

We have seen the above directions applied to the purification of Tallow, and never before saw it so perfectly blanched; it was afterwards made into candles, and these burnt slowly and most brilliantly—the tallow near the flame presented the crystalline appearance of Spermaceti, which is so pleasant to the eye; but it had the important advantage over Spermaceti, of being cheaper whilst we believe it afforded a more pure light. We recommend a trial of this process, on a small scale by housekeepers and Manufacturers—the latter might experience some difficulty in conducting the process at first, if tried upon too great a body of tallow, which if heated but a little too much, might get burned. Repeated trials on small parcels, will point out to them the proper way of carrying the process on largely, and we have no doubt that their candles, when made of Tallow, thus purified, would be better and handsomer, than they have ever been.

Common fish oil may be made by the above process, to equal the very best, and be prepared for the use of wollen manufactures.

And we hope that our hardy seamen, to whose enterprise our country is indebted for the oil we burn, may find a knowledge of this process, most useful to themselves. For its rationale and greater details, we refer those who have not the volumes of the Society at hand, to a valuable publication, the *Emporium of Arts and Sciences*, published at Philadelphia, by Professor Cox.

Edit. Am. Farmer.

COMMUNICATED.

Infalible cure for the Rheumatism.

Take sharp vinegar (the sharper the better) and rub well the part affected with it, as warm as the patient can bear, for ten minutes, and apply wrapping paper to it dipt in vinegar, to be renewed twice a day—viz: in the morning before breakfast, and in the evening going to bed. When the patient begins to make use of the vinegar, it is necessary to take a strong physic, and at the same time a spoonful of molasses and flour of sulphur, mixed together before breakfast, and another when going to bed; in a few days the patient will be perfectly cured.

The person who publishes this receipt has tried it twice on himself with success.

A new and valuable Styptic which will stop bleeding even of the largest blood vessels.

Take of brandy or common spirits two ounces; Castile soap two drachms; pearl-ash one drachm; scrape the soap fine, and dissolve

it in the brandy; then add the pearl-ash, mix it well together, and keep it close in a phial.—When you apply it, let it be warmed, and dip ledgets of lint in it, and the blood will immediately congeal.

It operates by coagulating the blood a considerable way within the vessel: a few applications may be necessary where the wound is deep, or where a limb is cut off.

RATS.

For their destruction, cut a piece of sponge into small pieces, dampen them a little in anniseed—then dip them in some melted dripping or fat. Lay them in the places infested, and it will be found equal to the most expensive or troublesome preparation.

To Plough Maker.

The model of a new Excavator or Labour Saving Machine, is exhibiting at Batavia village (N. Y.) constructed on a principle which, it is said, with the power of two men will scoop up and discharge, several feet from the bed of a canal of deep cutting, three tons in 10 or 15 minutes; and, that by the application of half of the above power, the Machine can be made to plough a furrow in hard earth, eighteen inches deep.

Boston Com. Gaz.

THE FARMER.

BALTIMORE, FRIDAY, DECEMBER 7, 1821.

PRICES CURRENT.

Flour from the wagons \$6 64 to \$6 134—Wharf Flour, 1000 bbls. at 90 days at \$6—Whiskey from the wagons, 31 cts exclusive of bbl.—Wheat, white, \$1 30 a 32—Red, do. \$1 25 a 1 30—Corn, old, 55—new, 50—Rye, 60—Oats, 34—Marketing, same as last report.

Maryland Tobacco—Fine yellow, none—good do. none—Fine Patuxent, red, \$8 to 10—good, do. \$5 30 to 7 50—Inferior, \$4 to 5, and in demand—Very inferior, no demand.

Virginia and Kentucky Tobacco—no sales.

To the Lovers of Rich Land.

Some of the most fertile land in America is offered for sale in quantities of from five hundred to 5000 acres—and in various degrees of improvement, to suit purchasers. It is situated on Pamlico Sound, between Mattamaskat Lake and the Sound—and within 25 miles of Ocracoke Bar, with navigation to the Barn-door; accompanied with all the benefits of fish and oysters, usual in such situations, and a choice of all the markets in the world for the produce of the land. The land will produce from 40 to 50 bushels of Indian corn to the acre for 100 years, without manure, with the slightest advantage of rotation of crops. It requires no rest. It is well adapted to the cultivation of wheat, cotton, and the grape. A more particular description is deemed unnecessary, as any one desirous of purchasing, it is presumed would wish to view the country. It is offered for sale, because the present proprietor, from peculiar circumstances, is desirous of leaving the state.

By application to the editor of the American Farmer, information will be received as to the address of the owner, for any one who may wish to correspond on the subject. The property will be sold on accommodating terms,
nov. 30

The Linnæan Botanic Garden,

At Long-Island, New-York,

William Prince, Proprietor,

Now contains upwards of 4000 species and varieties of Asiatic and Native TREES and PLANTS among which are about one thousand varieties of the finest Fruit of Europe and Asia imported at a great expense from the most celebrated collections in England, France and Germany. This immense collection has been the labor of more than half a century, and is now considered at least inferior to none. Catalogues of these considered most worthy of cultivation, may be had of the subscriber, who will receive and forward orders.

CHARLES R. PEARCE,
76 Bowly's wharf.

nov. 30

English Thrashing Machines.

The subscribers offer for sale two English Thrashing Machines—a moveable one, the price of which they have reduced to \$375—a stationary one, the price \$325. Many of these machines being now in use, their advantages are well known. They thrash out from 15 to 18 bushels of wheat per hour, or 26 bushels of rye per hour.

They have also for sale two machines that have been a short time in use—a moveable one for \$350; a stationary one for \$250.

WM. DAWSON & CO.

No. 47, S. Gay-street,
Baltimore.

* Further particulars, and reference to those who have the machinery in use, by applying as above.

SHAKERS GARDEN SEEDS,

RAISED AT

NEW-LEBANON, COLUMBIA COUNTY, N. YORK.

And put up in papers, the retail price of each paper is printed opposite to each article.

FOR SALE BY WM. F. REDDING,

Rodgers' Alley, one door west of the Post Office, and adjoining the same.

Among which are the following:

Per Paper.	Per Paper.
White Onion, cts. 16	Large Sugar Pease, 6
Yellow Onion, 124	Early China Beans, 6
Red Onion, 124	Do. Cranberry Beans, 6
Blood Beet, 8	Do. Purple Beans, 6
Scarcity Beet, 8	Running Clapboard Beans, 6
Turnip Beet, 6	Running Cranberry Beans, 6
Carrot, 6	Large Lima Beans, 6
Parsnip, 6	Small Lima do. early Whites, 6
Early Cucumber, 6	Sage, 6
Cucumber, 6	Summer Savory, 6
Long Cucumber, 6	Red Pepper, 6
Scarlet Radish, 6	Asparagus, 6
Salmon Radish, 6	Red Celery, 6
Black Winter Radish 6	White Celery, 6
Yel. Swedish Turnip, 6	Watermelon, 6
French Turnip, 6	Muskmelon, 6
Early Curled Lettuce 6	Winter Crockneck Squash, 6
Ice Lettuce, 6	Summer do. do. 4
Head Lettuce, 6	Do. Scollip Squash, 4
Green Lettuce, 6	Pepper Grass, 4
Early Cabbage, 6	Parsley, 4
Drum head Winter Cabbage, 6	Saffron, 4
Savoy Cabbage, 6	Burnet, 4
Red Cabbage, 6	Ruc, 4
Cauliflower Cabbage, 6	
Early Frame Pease, 6	
Early Hotspur Pease, 6	

dec. 7

PUBLISHED BY JOHN S. SKINNER.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL. III.

BALTIMORE, FRIDAY, DECEMBER 14, 1821.

NUM. 38.

AGRICULTURE.

ADDRESS

TO THE

PRINCE GEORGE'S

AGRICULTURAL SOCIETY.

December 8, 1821.

It is my painful duty to announce the death of our worthy President—with the arrow of youth he served his country in the Indian war, with General Wayne, and turned his sword into a plough share after the peace. My feeble efforts are not required to draw his amiable character; that has been ably done by one who knew him best and felt the most. He is gone to reap the rich harvest of his goodness and usefulness; let us more strenuously exert ourselves, that our Institution which he so actively promoted, may, notwithstanding, continue to advance.

Fearing that Dr. Dangerfield's illness would prevent his attendance at our regular meeting, on the 1st November, I had prepared an address, which with your approval, I will now read.

I have already recommended the planting of trees, and with urgency solicit your attention to the subject; the incensurable swelling of woods by slaves, who leave the full grown trees to decay, that they may avoid the labour of splitting, has caused such destruction of our forests, that a complaint of scarcity of timber is now prevalent throughout the county. Were we to cut down full grown trees, room would be given to the expansion of young ones; and were we to remove crooked saplings, the straight ones would grow more rapidly. A neighbour of mine, by adopting this plan, has accelerated the growth of his young trees in a surprising manner; and will have an exhaustless supply of timber. When we consider the quantity of wood consumed for family use and for negro quarters, where there is a most lavish waste of it; when we consider how much is applied to fence rails and to buildings; and when we consider, also, how much is destroyed in smoking tobacco, &c. we ought to introduce the greatest economy. Would not the introduction of stoves into negroes' quarters, be a great saving? as they could only burn sticks and refuse boughs, and could not lay on a large pile of wood to burn all night. Many of you are now even compen- to purchase estates, merely to obtain wood. Thus you are at a great expense; and if to this you add the expense of hauling from a distance, and think how soon even these woods will be exhausted you ought to be seriously uneasy at the prospect before you. It is urged that labour can be spared in winter—but suppose, that instead of letting your cattle browse and destroy your underwood, you soiled them—and employed your hands in collecting leaves and in attending to your barn yard, what an advantageous change would be effected. Perhaps it is a fair estimate, that every sapling will be worth five dollars in twenty years. A member has promised me some detailed calculations on this subject.

May not the increased sickness we experience in summer, and its augmented malignity which we have of late years experienced, be attributable to the great diminution of our woods? In one of my first addresses, I gave a hint to Botanists, to induce them to investigate the salubrious or insalubrious of different trees, by mentioning an anecdote of two eminent physicians in India. One of them told a healthy man to carry a note to the other physician, who lived at a

distance, and enjoined the man to sleep every night on the root under a tamarind tree; the exhalations from which are deemed unhealthy; the man arrived very sick—the physician perused the contents of the note, which were, "the bearer's illness baffles my skill, and therefore I send him to you, who are so successful in practice." The physician after making every inquiry, sent him back with the following note, and ordered him to sleep every night under a banyan tree: "You will find the bearer recovered."

The medicinal virtues of Jesuit's bark were discovered, by a Jesuit's observing that the water of a pond in which quinquina trees had fallen, cured the sick. We use the bark of cherry, of dogwood and of sassafras, and were more attention paid to our woods, we shall no doubt find, that Providence has given us the means to purify circumambient air, as well as to remedy disorders. Whatever we smell, we inhale, and as health depends upon the air we breathe, surely we ought to attend to the vegetation around us, that imperceptibly operates upon health, without which, nothing is valuable.

I wish State governments would, with the advice of medical men, plant particular trees round Hospitals, Jails and Poor-houses, to try their effects on the occupants. I wish, also, they would establish experimental farms; the expense will be trifling, and the advantages might be incalculable.—Birds select the headiest trees to roost upon, as if conscious of consequences. In the interior of our country, landholders pride themselves in the quantity of cleared land, and build their dwelling houses in open fields, without considering that trees intercept the mephitic vapours arising from decaying vegetables exposed to the sun; and that shade is beneficial; and that they may attract lightning from their houses.

In my spring address, I submitted to you, some suggestions to retrieve us from poverty, and I now venture some to prevent sickness. These will not, I hope, be deemed incompatible with the object of our association, although not decidedly agricultural.—*Fe ja's* and *cusca's*, bleeding and physicking, are become so frequent, that we are bound to consider of every means to diminish them. Now, indeed, can agriculture prosper, if labourers, carpenters and blacksmiths, are alternately under charge of the Lawyer and Doctor. Even in recommending attention to our own vegetation for medicinal purposes, I have a squinting at home supplies, in preference to foreign drugs: had I a startling like Sterne's, I would teach it to exclaim, *home market! home market! home market!* The internal tonnage of China, is stated to exceed all the tonnage of the commercial world.

In respect to Agriculture, so much is now commemoated, that we are almost perplexed by discordant recommendations on hasty experiments, I shall therefore be very cautious how I impart any of my own. I cannot, however, refrain from mentioning one to you. Having been defeated this year in my endeavours to raise melons, notwithstanding many applications of professed preventives of the destructive fly, I became very inquisitive for a remedy—and too late, a friend informed me, that by scattering dust every morning when the dew was on the leaves, he saved his melons. After this, finding that my turnips were rapidly destroying by the fly, I immediately burnt seeds, according to the Irish and English

* By an extract from Dr. Barton's Medical Journal, we learn that the effluvia from the stems, leaves and flowers of the *datura stramonium*, commonly called Jamestown weed, are suspected to be productive of intermittent fever—it is a strong narcotic, and it is spreading rapidly.

method, described in the American Farmer, and scattered the ashes on every drill. The effect was instantaneous—the fly did no more injury; and the ashes proved an excellent manure. A more cheap, easy and safe experiment cannot be suggested; and I have the consolation to know, that should it fail, the manure will repay the labor.

I think we have not sufficiently cultivated *Palma Christi*—we seem only to use its oil medicinally. In Asia it is relied upon for lamp oil—combined with pot ash, it makes soft soap, and with the addition of sea salt, it makes hard soap. In the interior, where there is much pot ash and salt, soap perhaps may become cheaper, and even an article of exportation.—Should successful experiments be produced by this animation, it will be a proof that our Society, the oldest in Maryland, has been of service to its country.

I indulged the hope, that ere this we should be more numerous, and that our contributions would enable us to give premiums annually; but many are deterred from joining us, under the idea that our Society is a select one, requiring strict attention, and also some written communication from every member. In other countries, gentlemen, although not farmers, and even ladies subscribe, merely to promote useful reports and exhibitions of productions, and also to excite emulation. As money is so easily raised for prize cups at horse races, surely contributions will be cheerfully bestowed for our premiums, if recommended by zealous, active members. I recommend that we resolve to meet only once a year, and in some place not too distant from the City of Washington, that we may have an annual concourse of agricultural amateurs, and ploughing matches, and exhibition of manufactures—which every one may witness. Thus we may cause a fair and have an instructive and exhilarating festival to perpetuate our institution.

In China, the Emperor once in the year at an appointed day, takes the plough, and after dwelling upon the products of nature increased by art, prays to nature's God.

"In ancient times, the sacred plow employ'd"

"The kings and awful fathers of mankind—"

"Ye sons of freedom venerate the plough."

"Nor ye who live"

"In luxury and ease, in pomp and pride,

"Think these lost themes unworthy of your care—"

"Such themes as these the rural Marston sing,

"To wide imperial Rome, in the full height

"Of elegance and taste, by Greece refin'd."

Thompson.

This was written for our meeting on the 1st of November, but our lamented President's illness, caused an adjournment—since that, the wind and cold have banished our epidemic, and let us indulge the hope, that this winter we shall obtain from the wisdom of Congress, a remedy for our dearth of money. Thanks to our Statesmen, we are not oppressed by taxation, which makes the burden of the speculators at Stockholm. Surely our Government will devise some financial means to promote the Potomac Canal, and one from the Chesapeake to the Delaware—but let us hope that the general government will no longer overlook these important objects, every where claiming attention, through this extensive Continent. Mr. Calhoun, when the bonus of the United States Bank of 1,500,000, presented the means, made a most luminous speech on public improvement. * May we be gratified

* Canals and arterial roads ought to be exclusively under the direction of government. I could men-

by eloquence on the same subject, with similar expanded views of the general interest, at this Congress. Methinks you exhibit fear lest I should expatriate on this favourite theme, whilst you are tired and wish to be otherways regaled. I am done.

THOMAS LAW.

December, 7th, 1821.

P. S. Since closing this, I have received from Mr. Skinner, some bene (or Sessamum) oil and seed for our Society. Mr. John McQueen, of Savannah, Georgia, sent it to Mr. Forman, of Savannah, Cecil County, who desired them to be sent to us. We shall no doubt return our thanks to these gentlemen, and I hope those who receive the seed, will report to us the result at our next meeting. I avail myself of this opportunity to express my acknowledgments to Mr. Skinner, for the kind attention he has shown in distributing seeds, in addition to the profitable seminal ideas he imparts in his American Farmer.

tion a canal attempted merely to consult local interests, and to obtain subscribers thereby, although not in the best and shortest route. Roads may be shortened to save expense of time, of horses and of men. That to New Orleans from Alexandria to Culpepper, may have a saving of about 20 miles in 70; (as I am informed). Calculate the saving of only 500 miles daily, for 100 years. No time should be lost in fixing straight routes: for towns will be established in permanently advantageous situations. If a general system be postponed between them, the circuitous routes to towns in out-of-the-way situations, will be perpetuated, and posterity will always complain of the negligence and want of foresight of existing legislators.

† I have, also, some white poppy seed from Mr. Skinner, the cultivation of which I have before strongly urged, as opium is so dear, and often adulterated; and as the oil not being narcotic, is a fine salad oil, and preferable to all other oils for white paint.

COTTON.

FOR THE AMERICAN FARMER.

Charleston, December 2, 1821.

Sir,—Your paper of the 9th ult. contains a letter from a gentleman who signs himself Agricola, Junr., requesting information upon the subject of Cotton Planting, and an appeal from you to your friends in the South. We have among us, many experienced and scientific planters who could do ample justice to the subject; but I am sorry to say, too much apathy and indifference prevail among them, to make public the result of their Agricultural experiments, and what little escapes, is confined altogether to a small circle of their friends in the neighbourhood.

Upon the subject of cotton planting, such a diversity of opinion exists, that it becomes difficult to ascertain which is the best mode to adopt. Actuated by a wish that every planter would make public, the plan of his choice, through the medium of a newspaper, I have taken the liberty of forwarding to you an account of the mode of attendance and management of my cotton crops, as practised for many years—I will therefore commence with

Nature of Soil.

If prime high land, of which the original growth has been oak and hickory has been laying out in a pasture, and has not been cultivated for a number of years, it is consequently more or less bound, and ought to be ploughed up, or turned with a hoe. Cotton, having a tap root, and a number of fibrous ramifications, requires the land to be made mellow, or the plant will not thrive. When the land is naturally loose the turning up may be avoided, and the sooner the ground is listed the better. In land just cut down,

it would be advisable to plant corn and peas, the first year, it will most probably bring a large crop of both, which it would not do in cotton from the quantity of sour juice constantly oozing out from the roots of the trees recently cut down, which is unfavourable to the growth of cotton, for the plants cannot thrive where any sourness prevails. Corn and peas will live and flourish where cotton will not even grow. One advantage of planting it the first year in corn and peas is, that the planter will have more time to spare in lopping up the trees, to which he ought to bend all his attention and force, that it may be prepared for cotton the next year. The land also gets freed of many impurities, unfavourable to the growth of cotton.

Mode of Planting.

In prime land, the beds or ridges ought to be five feet apart, and as high and broad as possible, particularly if the land is low, which must be well drained, otherwise it will be always in a sobby state, creating sourness by the influence of the sun operating upon it; in which case the plant always assumes a sickly appearance—the contrary effect takes place, where the land is well drained. Another disadvantage arising from the want of good draining, is that the cotton invariably takes the rust. A prime negro can ridge or bed up for his day's work, one quarter and a half quarter of an acre, and make the bed as high as requisite. The planting in holes at eighteen inches apart, is preferable to drilling, as the thinning can be made with more regularity, and the labour less; when the cotton is young, you will have only the spots where the cotton stands, to handle, which in drilling, must be done throughout the whole length of the bed.

Time of Planting.

The best time for planting, is the latter end of March, or as soon after as you think the weather suitable. Cotton planted earlier, is apt to be much hurt in its first coming up, by the unsettled weather, which often takes place in that month. Cotton planted too early, and once injured by frost or cold raw dews, will never come to that early perfection, that it would have done, had it been planted later, and not injured at all.

Quantity of Seed.

One bushel to the acre is generally planted; and in digging the hole, let the negro be instructed to make two chops with his hoe, that there may be plenty of room for scattering the seed, and in the thinning a choice of distance: leave at the last thinning the two plants that are to remain, at as great a distance as possible, to give air and promote growth.

First Thinning.

When the seed is well up, and the plants about 2 inches high, let each negro be provided with a short bat or stick, leaving his line at home, to break what clods may be found on the cotton bed; pull up from the centre of each hole, as many plants as you can hold between your three fingers and thumb, leaving about ten or a dozen standing: let the negro be directed to stir with his hand, the earth around the remaining plants, in the same manner as is done with cabbage plants, each negro can go through five or six quarter acres per day. The difference will be immediately perceptible, the plants assuming a lively, vigorous appearance, particularly if favoured shortly after, with a small shower of rain. Nothing promotes the growth of cotton in its young state more than early thinning and stirring the earth around the roots with the hand.

Second Thinning.

In your second thinning, which ought to be as soon as you can possibly get to it, the plants now growing apace, leave about seven or eight in each hole, observing the same process of stirring and putting dirt around the roots with the hand. In this thinning, the hoe can be made use of to haul down the cotton bed, if grassy, and to break up what clods may have been left.

Caution against Worms.

Should there be any apprehension, however, of worms attacking the cotton, which is very common at this stage of the plant, I would strongly recommend extreme caution in thinning, or if the worm be actually among the cotton, not to thin it at all, but to supply immediately what is cut down, and to make free use of the hoe, in keeping the field clean of grass, and by all means to attend to putting dirt around the roots, which tends so much to invigorate, and hasten them out of the way of the worm.

Third Thinning.

The season favourable, and now advanced, the plants, well grown, and the danger of the ravages of the worm removed; I would recommend to make a general and last thinning, leaving in each hole two plants, as wide apart as possible, and this being your second hoeing, the negro must be directed to haul up the bed, and to continue doing so in all the future hoeings, covering the grass completely. Attention to keeping the fields clean of grass, is of the utmost consequence in its early stage, once neglected in that state it never assumes that lively, vigorous appearance it would have done, had it been well attended. Continue hoeing while there is grass in the field, and be particularly careful in your last hoeing, that the grass be completely destroyed, for should it get up another, while you are picking cotton, the bottom pods will rot, and it is then too late to use the hoe.

Another bad effect arises from neglecting your last hoeing, it is actually sowing seeds which will come up in the next year, and make your fields very grassy. A field well attended, has every advantage, the plants continue to flourish, putting out constantly fresh blossoms, and bringing to greater and earlier perfection, those already put out. Neglect produces a contrary effect, and impresses the planter with an idea that the land is faulty, when the cause springs from himself.

Picking of Cotton.

The picking of cotton generally taking place about the beginning of September, it will be necessary to have each negro provided with an Osnaburg bag, which is slung over his neck or shoulders, for the purpose of putting the cotton in as he picks it in the field, and likewise in an Osnaburg sheet about the size of a blanket, which is placed in a convenient spot near to where he is picking, and as his small bag gets full, he empties into the sheet, and carries home in the afternoon. In picking cotton, the negro must be directed to guard as much as possible, against a small leaf, which when dry, often intermixes with the cotton, and never can be got rid of; thereby injuring the sale.

The general average in a good opening is from 45 to 50 weight each negro per day. Your next object of consideration is your scaffolds, on which your cotton is to be spread, when brought from the field. I would recommend their being unconnected with, but contiguous to your cotton house, and to be made 4 feet wide, each scaffold, so that a negro can with ease reach over, and turn the cotton; in case of rain, it is easily thrown into the cotton house. Spread your cotton as thin as possible that the sun may penetrate the quicker, it then requires but one sun.

Your gin house where the cotton is ginn'd, I would strongly recommend to be remote from your cotton house, or any other building. The many dreadful accidents of fire that may arise from the least carelessness or inattention are too obvious to say much about. It would be advisable to keep only as much cotton in the gin house as you are going to gin that day.

Much success has attended recultivation of cotton on R ver Swamps, particularly the green seed, or short staple, which can be with more certainty calculated upon, from its early maturity, the frost cannot affect it. Some years ago I planted 45 acres of my reclaimed Marsh in black seed, which yielded 414 bags of 800 weight each. The next year an early frost in October destroyed my prospects, and not more than 16 or 12 bags, were made from the same land, most of which, was of a very inferior quality

both in staple and colour. The green seed cotton having crept in among the planters upon the sea board, induced me among others to venture 115 acres, in my Marsh land; the season was favourable and the frost kept off to a late period. I sent to market 149 bags which by weight averaged 503lbs. of saw-gin'd cotton to every acre. I continued its cultivation, until within a few years, when the disease called the rot made its appearance, and has risen to a very alarming degree. Many attempts have been made to discover its origin, and means devised to arrest the ravages of this destructive plague, but as yet, as far as I have heard, all have failed. Among the various experiments I caused a great many small fires to be made upon stumps in various parts of my fields, and a sufficient quantity of powdered roll brim-stone put thereon, creating a disagreeable sulcating smell; so great was the smoke and vapours arising, that had it been an animal, it must, I think, have perished.—These fires, or rather smokes were regularly ordered to be made up every evening at sun down, and persisted in for a length of time, but all to no purpose, so great was the devastation, that from the same 115 acres, only 13 bags were produced. This falling off, and no hope of cure, obliged me to resort to the Highland, where I have been planting black seed ever since.

The treatment I observed with regard to attendance in my marsh land, was the same as recommended above on highland, with the exception, that about 3 weeks previous to setting my crop, the land was ridged or bedded up and immediately flooded deep enough to destroy vegetation, and kept so until the day before I was ready to plant, when the water was returned to the river, leaving the land, with every particle of vegetation destroyed, and exhibiting a jet black appearance, when I commenced my operations in setting the crop.

If you think the substance of the above communication worth insertion in your paper, and that it will throw one ray of light upon the subject, and be at all servicable to Agricola, junr. or other planters, it will afford me pleasure to suppose that I have been instrumental in furnishing it.

I remain,

very respectfully,

your obedient servant,

CHARLES E. ROWAND.

P. S. That I may not mislead, I beg leave to observe, that when the tide lands are a stiff clay, they must be pulverised with a plough; flooding such land would be altogether improper, and the very object of pulverization being destroyed by it.

To the Editor of the American Farmer.

COTTON.

NOVEMBER 24, 1821.

Mr. Skinner,

In Number 33, third volume, of your paper, Agricola, jr. solicits information on the subject of the culture of cotton. Almost every plantation in our country has a system of its own—hence the difficulty of entering into details. I have attempted a hasty sketch of the most important objects of attention in this culture; and should these hints be of any use to your correspondent, or to others, it will afford me pleasure. In this culture, as in most others, different soils require different modes of preparation.

In light soils the plough only is used in the formation of the "beds" or "ridges," which generally consist of from three to five furrows thrown together.

For this purpose the common shovel plough is in most general use, as it also is in the cultivation of the crop. My manner of preparation, however, is somewhat different. My beds consist of five furrow slices, the first of which is thrown nearly in the centre of the interval between the old beds, (whether of cotton or corn, if the distance suits) with Wood's patent plough,

followed in the furrow by a narrow shovel fourteen inches long. Two furrow slices on each side are thrown to the first, with the same plough, followed in every furrow by the narrow shovel. On light soils this is deemed sufficient, the intervals being left, until the crop receives its first ploughing. On stiff clay soils, this would be hazardous—the five furrows are run, however, in the same manner as in light soils, the intervals are also ploughed at the same time: it is not, however, material in ploughing these, to go to the same depth—the whole is then drawn together and shaped by the hoe. This is to guard against the danger of a drought in the spring, which would subvert the land, as to render the breaking of the middles extremely difficult. These observations apply to the preparation of lands that have been in cultivation the year preceding. With those that have been at rest, and on which there is a large quantity of vegetable matter, I would recommend a different treatment.

The preparation on these should commence as early as the 20th of August. Deep furrows should be run at the distance it is contemplated to have the beds: all the grass, &c. should be drawn with the hoe into them; the whole surface should then be ploughed, and followed by the hoe, so as to form the beds immediately over the vegetable matter. It is important to commence and to finish this operation early, to insure the complete rotting of the matter thus drawn into the furrows, before the cotton plant begins to shoot its long tap root into the earth.—Should circumstances delay the preparations until after Christmas, in clay soils particularly, it is then best, I think, to turn the vegetable matter under with the plough, and form the beds with the hoe. The distance between the beds will depend of course upon the quality of the soil. On lands capable of producing from 10 to 15 bushels of corn, they should be, about 4 ft apart, from 15 to 25 bu's—5 feet, from 30 to 50 bush—6 ft, 50 to 70 bu's—7 ft and 8 ft. I deem sufficient space for any land, if well thinned in the drill. It is important to be in readiness to plant, so soon as all danger of frost is over; one week in the first of the season, is worth a fortnight in the latter part of it. I generally plant the first open weather after the 20th March, always reserving seed sufficient for replanting in case of accident. On the centre of the bed, a narrow trench is opened with the corner of a hoe, the seed dropped carefully into it, and covered with rakes, as lightly as possible, the covers, taking care to move the rake lengthwise of the beds, to prevent the teeth removing the seed from the drill. The seed row to be rubbed, before planting, with dirt, or ashes which is better, and a moderate quantity of water, to enable the seed to drop with regularity. The quantity of seed to the acre, depends on the lightness or stiffness of the soil; in light land from three to five bushels, in stiff from 10 to 15. So soon as the cotton begins to come up, it should be lightly drawn down with the hoe. In stiff clay soils, it is sometimes necessary to perform this operation, to enable it to come through, as it frequently happens that a heavy fall of rain, followed by hard winds, may form a crust over the seed, which, if cut on each side of the drills, the seed, in coming up, will easily throw off. The drawing down is followed by a close ploughing to the cotton: it is then carefully drawn up with the hoe, and all the loose dirt drawn to the bed. At this stage it is proper to give it its first thinning—the best and most expeditious mode of doing which, is to put a few of the most intelligent hands, to chopping it out with the hoe, immediately before those who are drawing up. A practised hand will go over four acres per day, (if the rows are not nearer than five feet,) and remove all but five or six plants, the fine dirt is then drawn carefully round these. So soon as the fourth leaf makes its appearance, it is then thinned by hand, to two stocks; when these begin to grow finely, draw all out but one. There is a great variety of opinion as it regards the proper distance in the drill; my own experience is decidedly in favor of great distance—in no land, however poor, would I have it nearer than 9 inches, and in the best low grounds from

two and a half to three feet. The cultivation of the crop depends much on the season. If dry, plough and draw dirt to the cotton, and cover the young grass; if wet, draw the grass lightly from the cotton; plough, and then earth up as early as the weather will permit. This system of ploughing and hoeing is to be continued, until the cotton becomes so large as to be injured by the plough passing through it: it must then be chipped over with the hoe until the crop is made, of which a judgment may be formed, by its beginning to open freely at the bottom. From five to seven acres is the usual crop to the hand, exclusive of corn. Ten hands could cultivate one hundred acres of cotton with ease; but if a good crop it would require twenty to pick it out. I have never planted in hills, because I think the drill has many advantages, not only in the culture of cotton, but of every other crop. The singling is generally deemed the best soil for the production of cotton—it is beyond a doubt the most certain; but any land that produces good corn, in a proper latitude, will produce good cotton. In low grounds a dry season is preferred, because with common industry the crop can be kept free from grass, which is all important; high lands will bear more rain, because they may be worked in all seasons. I have never seen any work on the subject of "the culture of cotton," nor do I believe such an one has been printed. I believe I have now answered all the interrogatories of Agricola, jr. and if done to his satisfaction, I shall be truly gratified.

A Short Staple Cotton Planter.

THERMOMETRICAL OBSERVATIONS.

[From the Southern Patriot, So. Ca. Sept. 1st.]

Mr. Editor,

Your paper of the 24th ult. contained a notice of the state of the weather in New York on the 16th.—Twenty years since, I was in the habit of attending to the thermometer with much more precision, than I have for some years past. About sun rise, and nine o'clock at night, generally were of the same temperature—from 12 to 2 o'clock, P. M. is, usually, the hottest time of the day; but, about 4 P. M. indicated the greatest degree of heat, during the hot months; an hour before sun rise, appears to be the coldest period of the night. If, at 9 P. M. in the fall, or spring, the mercury in an exposed situation, be at about 40°, of Fahrenheit, we may calculate upon having ice the next day, unless it becomes cloudy, or rains during the night. The day of the late eclipse, the thermometer being in a situation fully under the influence of the sun, at 7 o'clock, A. M. was up to 80 degrees. It soon began to fall, and at half past 8, stood at 70°. By 9 o'clock, it was again at 80°—half past 9, it was up to 90°; and, at five minutes before 10 o'clock, apparently the end of the eclipse, the mercury was up to 106 degrees. It became cloudy, and the instrument was removed. We have had in June rain for 10 days; in July, 20 days; and in August 9 days. Some of these rains were unusually heavy, and follow the rainy months of March, April and May; the crops of cotton and corn have been much injured. We have had, with the exception of a few days, a cool summer, the mercury has not exceeded 86°, and generally stood, upon the hot days we have had, at from 82° to 84°. Dr. Ramsay's opinion, that our summers are cooler than formerly, appears to be correct. But, our frosts, in the fall and spring, for some years past, have visited us, at a more unfavourable period than they usually did 20 or 30 years ago.

A COTTON PLANTER.

Sept, 1st, 1821.

For the American Farmer.

Indian Corn.

HOW TO MAKE A DOUBLE CROP ON POOR GROUND.

Plough up your ground intended for corn, in the fall of the year, as deep as you can plough it. Lay till spring. At the opening of the spring, when

the frost is entirely out of the ground, give it a good ploughing and harrow it down. It is then in good order for preparing to plant. Take of slacked ashes, two-thirds, and of ground plaster, one-third; mix them well together, and follow the droppers, and put as much of this mixture on the seed as you can grasp in your hand, and cover it well over in the usual way. The corn will come up strong and green, and will grow off finely, and retain a strong, vigorous growth and green colour, and stand the drought much better than upon the strongest land. The writer of this has tried this experiment for two years, and has tested the value of this mode of culture.—From 22 acres of very poor ground, which was entirely exhausted and worn out, he raised 137 barrels of long corn, the cob of which was much larger than the usual size. Upon the strongest land, many of the cobs contained 24 rows of seed upon a cob. It is well to remark that this same piece of ground was put in corn about three years before, & scarcely re-produced the seed. It was then sown in rye, and the crop of rye was scarcely worth cutting—it was plastered and sowed in clover, but its poverty was such that the clover was scarcely to be seen. It came up well, but not having sufficient nourishment from the soil, it died away—it was then used as a pasture until two years after, when he wanted of other ground, induced the writer again to try a corn crop on it, with the use of ashes and plaster combined, as before stated, and such was the crop it yielded, that his overseer and all who saw it, were astonished at the quantity produced, by this experiment. To be convinced more certainly of the experiment, the writer took a field adjoining, nearly of the same quality—this field, also, having been worked upwards of forty years without the aid of manure, plaster or clover to reanimate it, was seeded in corn last summer, and may contain 25 acres; the overseer states in a letter to the writer, that he had lost 40 barrels of corn, and supposed that he had about one half lost, making 160 barrels of corn from 25 acres of poor old fields. This field I manured in the hill with 60 bushels of ashes from the soap boilers, and 25 bushels of plaster, all of which only cost \$10—if for the expense of 10 dolls. in ashes and plaster, more than a double crop of corn can be raised from land otherwise laying waste, or not worth the expense of cultivation, ought not every farmer to resort to this mode of culture, in preference to planting corn on the best lands as is usually done to secure a certain crop? his best lands might then be kept in crops less exhausting. This mode of plantation will give a chance of bringing all his grounds into clover lays, by giving time for the clover to form a good cover before it is ploughed in. The writer was induced to try this experiment and risk the chance of a crop on his poorest land, rather than prematurely turn in his clover for corn, and he was thereby enabled to turn in a full crop of clover the succeeding year for a wheat crop.

* 650 bushels.

† 800 bushels.

The preceding communication is very interesting, and the more especially as it is the result of actual practice. The Editor regrets that the writer did not attach his name, but the writing is well known to him, and he can pledge himself for the respectability and integrity of the author.

Edit. Am. Farmer.

FOR THE AMERICAN FARMER.

To Cure Bacon.

VIRGINIA, vs. BURLINGTON.

Richmond County Va.

November 24th, 1821. }

MR. SKINNER:

Having seen in the 20th No. of the 3d Vol. of your American Farmer, a refusal of one, who has been specially called on to communicate his knowledge of the mode of curing Burlington hams, I cannot longer re-

frain from giving such information as I possess, in curing hams according to our Virginia mode, as practised by me for many years, and which on trial I am induced to believe, will be found fully equal, if not superior, to the Burlington or even the celebrated Westphalia. This I do with pleasure having no secret to preserve, being no "trucker or trader."

My practice is as follows: first salt the pork by giving it a pretty good salting, and pack it away on boards or planks, with a slope sufficient to let the brine run off. In this situation it lies ten or twelve days, when it is taken up, and each piece wiped dry, with a coarse cloth, and to each ham is added a heaping tea spoonful of the best crystallized salt petre, by sprinkling over it, and rubbing it well in with the hand. It is then re-salted well again, and packed away on planks or boards in convenient cases, if may then be an advantage to retain or preserve all the brine you can; whereas, the first brine I have found from experience to be of great injury, as it tends to putrescence and is ill by no means be reabsorbed by the meat, laying in it after being extracted by the salt; as I conceive it to be that which produces the bugs and skippers in the meat after it has been smoked.—The time of putting on the salt petre is of much more importance than is supposed by those who have not made the trial, for if put on at the first salting, the meat is always dry, hard and too salt, but why it has this effect, I am not a climist enough to determine. On giving the meat a second salting I add to the salt as much brown sugar or molasses as will moisten or damp it, and is much of the common red pepper as will give the salt quite a red appearance. The pods are first dried before a fire or on a gridling, and then pounded tolerably fine in a mortar. The meat then lies about 5 or 6 weeks, when each piece should be rubbed well with hickory ashes, and hung up to smoke with the hock downwards, which prevents its dripping and thereby retains its juices. The Liverpool sack-salt is what I have generally used, and I think it is much to be preferred to any other.

The smoke is generally made from chips raked up from the wood pile, with a little of the dust, doated, or rotten wood with it, to prevent a blaze, or clear fire and too great a heat, saw dust of hickory or oak is still better to make the smoke, to which is added two or three pods of the red pepper each day.

After it is sufficiently smoked, which it will be in 5 or 6 weeks if regularly attended to, it is taken down and packed away in casks or boxes, with hickory ashes, covering the meat entirely with them, and between each layer is put some thin slips of laths or boards to prevent each layer of meat pressing down and touching each other, and in the course of the summer it is taken out and sunned once or twice.

If it is intended for exportation, bran is the best thing to pack it in, for shipping, especially if it is intended for a southern market. By this mode of curing, my bacon, has got the reputation (by those who have eat of it), to be equal if not superior to any they have ever tasted. But I concur with Mr. Cox, the writer in your 2d No. of the 3d Vol. That "a great deal depends upon the nature of the flesh of the several breeds of hogs" and the manner of raising and feeding. From the experience which I have had, I think a cross of one-fourth of the Chinese, on our common stock, which is a mixture of the English breed including the Parkinson, which we have amongst us, is the most delicate in flavour and taste and easier to be raised and kept fat, consuming less grain. The meat of those which are suffered to feed in the fields and woods, with a little feeding with grain until they are put up to fatten, are far superior to those which are raised in the sty, and fed on grain and slops, as is the northern custom. Their meat is much larger and coarser than ours, and may answer very well for salting and barreling up as pork, but by no means answers as well for bacon, being too coarse and strong in flavour. The manner in which our hogs are raised and fed, and their size I consider as the principal reasons why our Virginia hams have been so much approved of, both in this country and Europe. I have tried various ways to fatten hogs, at

ter they have been put up for close fattening, but have never found any thing to equal Indian corn or corn meal; turnips, potatoes, peas, pumpkins, &c. will do very well when they are first put up, but must be left off some weeks before they are killed, in order to harden their fat, and give it a superior flavour by using Indian corn alone, with a little salt water, or a salt herring once or twice a week.

To make bacon of the most delicate flavour, the hogs should not exceed 160lb in wt, nor 21 months in age, and it is for this reason and the great economy in raising and feeding, as well as preventing their becoming mischievous and troublesome on a farm, that I approve of Col Taylor's system of killing every hog on the farm every year, that is ten months or upwards old, except the Breeders. I have followed this practice for about seven years, and have found a considerable profit in it, as hogs kept over two winters are very unprofitable, and their flesh by no means as delicate and sweet. Hogs from 10 to 21 months old, with a little more than the ordinary keep with us (which is very ordinary indeed, as we generally leave them much to grow and snuff for themselves) will weigh from 120 to 180lbs, and the sweetest and most delicate flavoured hams will not be found to exceed from 10 to 15lbs in weight even of hogs of their age, and when older they are much coarser and less savoury.

These, Mr. Skinner, are my ideas, obtained from experience and thrown together in a very hasty manner, and should they on trial be found to please the palates of others and be generally adopted by them, I may be benefited instead of injured as was apprehended by a Burlington dealer, for as I sometimes travel from home, and am fond of good meat, I may the oftener get a bit of ham after my own mode of curing. And with very great respect, and my sincere wishes for your success in your very useful paper.

I am your most obedient,
JNO. DARBY.

SMALL SHEEP—LARGE TURNIPS AND CABBAGES—SMALL HORSES AND TULIP MADNESS IN HOLLAND.

To the Editor of the American Farmer.

Dear Sir,—I sent you an account the other day of a remarkable large sheep, I now send you an account of some uncommonly small. Many years ago, I was in company with Steven West, Esq. of the Wood-yard near Marlborough, father to the present general of that name—he said when he was in company with Daniel Dulany & Dr. Scott, both of Annapolis, the conversation turning on sheep, the smallness of the sheep of Shetland Isles was mentioned. Doctor Scott said they were about the size, he thought, of our sheep here. Thus Mr. Dulany dissented from with much emphasis. Some time after, Mr. West and Mr. Dulany were riding together, and Mr. West asked how large the Shetland sheep were—the answer was, "very small"—were they as large as that hog there? "No?" As that? "No?" For God's sake how large were they? "Why they brought two on a dish, and charged one shilling a piece for them: the captain said they imposed on us—the regular price was only 8s."

N. B. Mr. Dulany and Doctor Scott, returned from England in the war that commenced in 1753, and came north about, and had put in at one of the Shetland Isles.

I see the size of a turnip has been bandied about in the papers.

A turnip weighing 73 pounds, was raised by Jas. Ellis, of Hertfordshire, who sold it for a penny, after winning five guineas—by betting that it would weigh 73 pounds. See Old Annual Register, 1764 page 193

A cabbage weighed 92 pounds—grown by Mr. Baker, of Runcorn, Leicestershire. See Lancaster's New Farmer's Calendar, 5th Edition—London, 1809, page 391.

A horse from the East Indies, was presented to the King or Queen of England, 2 feet 10 inches high—

Annual Register, 1769, page 165. A mare 27 inches high, and a horse 33 inches—Annual Register, 17 5, page 117.

A gentleman offered 1500£ per annum, for two tulips, for seven years, and to return the flower or root, only retaining the increase. Annual Register, 1765 page 50, under the head, characters.

Your's respectfully.

Georgetown, D. C. Nov. 2
30th, 1821.

Flax Dressing Machines.

For the American Farmer.

Brighton, 29th November, 1821.

JOHN S. SKINNER, Esq.

Dear Sir—I observed in the American Farmer, number 27, an article requesting further information on the subject of the machine for dressing flax, stated in my 'Essay on Flax Husbandry,' to be in operation in Dutchess county, New York. My informant was the Hon. Philip J. Schuyler, of Rhinebeck, who has recently been so kind as to furnish the following facts, which he obtained from the owner of the machine: "The mill was invented by a person in Connecticut: the cost from four to five hundred dollars, and requires a two-story building, of about thirty feet square. With a machine of four knives, 400 pound of flax may be finished in a day; the waste very trifling.—During the war the mill was profitable: but since, there has not been a sufficient quantity of flax raised to keep it employed but for a small part of the year."

The interest this information would otherwise excite, will undoubtedly be transferred to the machine of Messrs. Dey and Macdonald, now in operation in New York:—and I feel much gratification in being enabled to send you the following extract of a letter on the subject, which I received from Mr. Dey—dated, 26th inst.

"Many persons have seen the machine operate, and their strong prejudices have been completely overcome—I send you a copy of a certificate, signed by a number of gentlemen of the highest respectability here—some of whom I know were sceptics—but have at length yielded to the senses of sight and feeling."

CERTIFICATE.

"We were present at a trial of a newly invented machine, made for dressing flax or hem in an unrotted or unwetted state, belonging to Messrs. Anthony Dey and James Macdonald, of this city.—The machine is constructed to go by water or animal power; but on the trial was worked with facility by four men—one of the subscribers held a watch, by which it was ascertained that three ordinary lengths of flax plant, unwetted, were carried completely through the machine in less than one minute; and three lengths of hemp through, in a little more than one minute. It is estimated that when driven by the proper power, the machine will clean one ton of flax plant or hemp, wetted or unwetted in a day—and Mr. Dey exhibited and gave to each of us a sample of flax in a fine, beautiful, white state, resembling flax silk, which he estimated, from the experi-

ments he has made, may be cleaned through the machine, and reduced to its beautiful state for about two cents a pound; and he informed us that in doing it he did not make use of any other preparation, than is to be found in every farmer's house in abundance, and which was done after the flax had passed through the machine.

New-York, November, 1821.

(Signed)

J. L. OGDEN,
RICHARD VARICK,
LE RAY DE CHAUMONT,
DAVID B. OGDEN,
RUDOLPH RUNNER,
GEO. BRINCKERHOFF,
BENJAMIN L. SWAN,
GEO. GRISWOLD.

"Mr. Dey says further, "I have been more than three months past engaged in preparing my land," (reclaimed salt marshes in New-Jersey) "to the extent of 100 acres for a hemp and flax crop the ensuing season—you may from that circumstance judge of my views on the subject."

The prospect of a boom to the farmer, in some measure corresponding with that of the cotton-gin of the planter, is certainly very promising; and which may lead to results of incalculable importance to the rural economy of our country.

I remain, dear sir,
truly yours,

J. W. POMEROY.

FOR THE AMERICAN FARMER.

FLAX DRESSING.

ENGLISH MACHINES.—Extract of a letter from an intelligent correspondent, in London, to Richard Peters, dated Sept 15, 1821.

"I write this hasty letter in answer to your last, to assure you that I will immediately call on Bundy, and send you the fullest account in my power, as to his machines, himself, or any capable maker, to suit your purpose. The small machine is perfectly effective for families; but the one which Wright made, [for the Philadelphia Society] is Mr. Bundy's second size, by your description. I have seen it at work in Bundy's manufactory; but it is complicated, and will not come into general use. You may rely on the fact, that his large machine (water-power) is very simple and effective and is the one which you ought to have; but the small ones are highly desirable for families.—The drawing gives you no idea of the *modus operandi*, which is the simplest imaginable.

I beg to tell you, in one word, that Bundy's flax is not wetted at all. But our climate is cool, and it is desirable that the flax to be broke should be in a highly dried state, so he exposes it some hours to the sun, before putting it through the machine. All flax stands to form its seeds, (though all hemp does not), and therefore must be *ripped*; which is a process of pulling it by hand—fuls though a toothed machine—to pull off the capsules which contain the seed; the same operation discharges the seeds from the pods; and, besides, combs out what small weeds there may be, which is so

needful, that, whether you break it wetted or dry, it is not to be successfully done, if the stalks be not *exclusively* flax.

We have this year the most disastrous and defective harvest that ever was known in England. A most cold, late, and dry summer, is followed by a dreadfully wet and warm autumn. Our harvest is more than half totally spoiled, and yet on the ground this 15th of September. Markets are extraordinarily advanced."

FOR THE AMERICAN FARMER.

The Plough.

11th mo. 27th, 1821.

Friend John S. Skinner—

I had supposed that my communication respecting the horse and plough, would excite the attention of the agricultural part of the community; but I had no idea of its becoming a subject of so much interest as it appears to be, and especially in so short a time. Since that communication was published, I have received orders for ploughs from different districts of the country, from Mass. to Georgia, with an expression of a desire to see their form, know the price, and realise their utility, designing to order for common use, if those should on trial, meet their approbation. But from divers communications, which I have received, requesting to know the prices of my improved ploughs, I presume the description of the plough has caused it to be apprehended by many, that they would come at a very high price; for some have requested me to forward ploughs to them, if the price did not exceed sums which they specified; and others say that if the prices are not too high, they would purchase. In order to satisfy those who may wish to know, I beg leave to inform them, that the price of the 9 inch plough is \$12—the 10 inch, \$14—the 11 inch, or three horse plough, \$16—and the adjusting shovel plough with two shovels, one round and one square, \$5. The materials are good, and the workmanship well done; and I have heard little or no objection to the price, on the part of those who have seen and used them.—They may cost considerably more than some other ploughs, yet I believe it to be acknowledged, that the superiority of materials and workmanship, will fully equalise the prices. Some persons have said, that they could buy ploughs of the same size, for half the money, but acknowledged at the same time, that they were not worth half so much; and that, without any reference to their operation, which alone I believe will justify me in saying, that my ploughs are cheaper than any that I have ever seen.

I have noticed in the 34th number of the American Farmer, page 272, that it is doubted, whether the method of testing by the dynamometer in my manner, could be correct. For the satisfaction of any persons that may feel doubtful, they may assure them, the ploughs that those experiments were tried with, were all adapted to cut and turn a furrow of the same depth and width; and that it was my desire and intention to make a fair and an honest trial, let the result be what it would. Since my

communication was published, I have been favoured with a detail of most of the experiments, published in that page of the *American Farmer*, which gave me much satisfaction—and by comparing the operation of the Free-born ploughs, I suppose there was about 14 per cent difference in the quality of the land: that in Maryland ploughed the easiest.

GIDEON DAVIS,
Manufacturer.

Editorial Correspondence.

Kingston, Tennessee, 1st Aug. 1821

PEACH TREES—how to save.—Canal proposed.

Is it known or practised any where in your state, where peach trees are on the decline, to dig round them, and pour about half a bushel of brine out of a herring barrel on the roots?—If some of the herrings are in it, the better. It will generally restore the tree to perfect health in a short time.

For the last two or three years I have been trying occasionally to draw the attention of those concerned, to getting a Canal cut to connect the waters of the Mississippi with those of the Chesapeake—to leave the Mississippi about where the south line of this state strikes it—and then in as direct a course as can be got to the navigable waters of the Roanoke. This canal would be preferable to that of New-York. It would make Norfolk become what New-York is now, or even what she expects to become—and would add much business to your place I think.

SAMUEL MARTIN.

The saving, by transportation, by way of the Canal, from the western part of the state of New-York, to the city, is already 15 dollars in one ton of pot and pearl ashes.

Large Egg Plants.

From the *Georgia Advertiser*.

Augusta, November, 1821.

There was recently exhibited to us, six of the *Solanum Melongena*; or as it is commonly called the French Squash, or Egg Plant, which were raised in the garden of Mr. John Miller, of the Planters' Hotel, the largest of which weighed 4 pounds, and the six weighed 17 lbs. In some of the New-York papers it has been mentioned that one of these vegetables had been raised there weighing 23 pounds, which seemed to be considered an extraordinary growth. In Mr. Miller's garden we understand there have been several gatherings of these plants which in size and weight, which fully equalled those exhibited to us. It is not within our knowledge that these plants have been raised of an equal size any where in the United States.

We are informed that Mr. Miller has had Egg Plants that were even larger than the above mentioned—some that weighed four pounds and three-

fourths: and as it has been frequently intimated to us that communications on Horticultural subjects would be very gratifying to many of our readers, we assure our correspondents, that such notices will be very thankfully received and gladly published.

Editor *Am. Farmer*.

From the *London Farmers Journal*.

REMEDY FOR RED-WATER IN OXEN.

Thorp Grange, near Great Bridge
Aug. 8th, 1821.

SIR,—Having seen, in your *Journal* of the 23d of last month, a *Suffolk Farmer's Query* or the Diseases of Cows, &c., I cannot withhold from him the following remedy for the red-water in Cows.

For a full grown short-horned cow, dissolve two pounds of Epsom salts in about one quart or three pints of boiling water, and give it to her when about new-milk warm. She should then be tied up in the house, and left to stand six or eight hours without any food; by the end of which time the salts should have operated. If they have not, give her 4 or 5 quarts of warm water, and drive her gently about during a quarter of an hour, by which time they will have operated; then give her as much warm water as she will drink, and turn her out to graze, if in summer, and the weather be dry.

My brother, J. Waistell, of West Park, near Barnard Castle, has used the above remedy for upwards of thirty years; and has not, in all that time, lost one beast by the red-water. Before he commenced using it, he almost invariably lost cattle annually in this disease. His cattle are now less frequently afflicted with it than formerly, which he attributes to his having under-drained a great part of his farm, which was wet and boggy. The above remedy was communicated to him by his relation Mr. Kendall, a cow-keeper, who, for many years, kept many cows, and occupied part of Marylebone Park at London.

It may be useful to add the following cautions:—

Be careful to use *Epsom salts*, and not to administer a less dose than *two pounds* to a full grown beast. Some persons have given much less, and have lost their beasts, in consequence of the salts failing to operate. Constipation, or binding of the belly, then ensues with high fever, and speedy death. To a Scotch kiloe, of about 25 stones or 14 lbs give *one pound and an half*, and to other cattle in proportion to their sizes. These proportions have always been found effectual, if timely administered, and never known to injure any beast. As to the black water, which the *Suffolk Farmer* mentions, I do not find that disease to be known here; excepting that in the last, and incurable stage of the red-water, the stale becomes of a dark and blackish hue.

Should the above information prove beneficial to the *Suffolk Farmer*, or any other of your readers, who have valuable receipts for the cure of diseases in cattle, I trust they will, in return, be generous enough to communicate their knowledge to the public, by means of your valuable *Journal*. Should this hint be complied with

it may send you a receipt or two for preventing the quarter-ill in calves.

I am, sir,

Your obedient servant,

CHARLES WAISTELL.

"Doctors differ, and their Patients die."

RED-HOOK, November 13th, 1821.

William Coleman, Esquire.

Aware of the interest you have taken in the *Scutellaria*, and your indefatigable exertions to disseminate a knowledge of the virtues of that valuable plant, in nervous afflictions; I take the liberty of communicating a case which has lately occurred in my practice, in which a perfect cure has been effected by *Scutellaria* alone, in the short space of three weeks.—Doct. Hoffman, of the United States navy, who witnessed the case at several periods, and who will deliver this, can give you such information, respecting it, as may have fallen under his observation.

Respectfully yours, &c.

L. KING.

CASE.

Mrs. Elmendorph, aged sixty years, had about three years ago, a paralytic shock. The attack was marked with the following symptoms—sickness of the stomach, succeeded by vomiting, and a delirium which continued about twenty-four hours, when her vomiting ceased, and her reason returned; all this time she discovered a loss of sensation, and the power of voluntary motion in her extremities; connected with the above symptoms she had a violent cough. She continued in this state about eighteen months, when sensation was partially restored; but the power of voluntary motion still absent; she was also at this time, constantly affected with convulsive motions of her lower extremities, ankylosis, or stiffness of the joints; her fingers were drawn backward, and were immoveable, with a considerable enlargement of their joints; she had repeated sharp pains darting through her extremities; in short she was a perfect cripple, harassed with a most racking cough, which was frequently attended with discharges of blood from the lungs.

In this situation, she lingered for more than a year without any relief except partial remission of pain at times while under the influence of opium; but there was not the least prospect of her being restored to health.—About the 1st of October last, I was requested to see her, and found her labouring under the above painful symptoms.

In consequence of the absence of fever, in her case, I was induced to consider the cough spasmodic, and the affection of her extremities nervous. Having seen several reports in the *Evening Post*, in favour of the curative properties of *scutellaria* in nervous complaints, I was induced to try its effects in this case. In order to ascertain the virtues of this plant, I administered it without the addition of sulphur. She took three gills a day, fasting, of a strong decoction. For the first four days, it apparently increased the nervous irritation; she however, by entreaty, continued its use; on the

seventh day she felt a partial relief; on the ninth day the muscles of the extremities began to relax, her cough to abate, the stiffness of the joints began to become supple, she walked tolerably well, her health was generally improved and she rested without the use of opium; her appetite was much better and she increased considerably in strength. From this time, a change for the better was visible every day, and at the end of three weeks her health was so much improved, that she, who had not walked for more than a year without the aid of her cane, now had entire use of her limbs, walked quite as well as is common with persons at her age; her cough was quite relieved, and she considered herself, as I did, quite cured.

N. F. Eve. Post.

ON THE SCULL CAP.

The following extracts from an Essay by Dr. Barton, in the Philadelphia Medical Journal, recently published, is calculated to abate the confidence which some have sanguinely entertained in the efficacy of the Scull Cap:

"*Scutellaria latifolia*, or Scull Cap, is an inert vegetable, in whatever form it be prepared, or in whatever manner administered. It has no effect, directly or indirectly, on the general system, or any part of it, evidenced at least by those marks of operation, which physicians and pathologists have universally agreed on as unequivocal evidences of medicinal power.

"Scull Cap evinces no activity or medicinal power, either in substance, or decoction, or infusion, or tincture! I have drank to the extent of a pint within half an hour, with impunity. In a solid form I have not only tried it and found it unavailing in hydrophobia but have no hesitation in pledging myself to administer any quantity, not offensive from mere bulk, to any number of persons willing to make the experiment, without the slightest perceptible effect discernable by the senses, or even rationally conceivable by the understanding.

"*Scutellaria* belongs to the same family of plants with Marjorom, Thyme, Sage, Lavender, Balm, Pennyroyal, Horchound—*Rosemary*, is the most powerful of the whole family.

"Scull Cap is endowed with no sensible properties: It is devoid of taste or smell, except in common with every other inert plant. It has no pungency or aromatic principle. It produces no sensation in the stomach, nor head, nor brain, nor throat, nor lungs, nor liver, nor bowels. It neither affects respiration, digestion, nor any of the vital functions in the smallest degree. It has no volatile part. It is wholly and essentially inert, and consequently medicinally worthless."

For the American Farmer.

Mangel-Wurtzel, Fruit Trees, &c.

Oxford, Talbot Co., Md. Dec. 5, 1821.

DEAR SIR—I have made a small experiment on the culture of the Mangel-Wurtzel; and am now of the opinion that a greater weight of this vegetable can be raised per acre, than can be produced of any other sort that I have ever tried.

The land on which I cultivated it, was in the year 1820 in Indian corn, and I gave it a light sprinkle of stable manure, before I sowed it up last March. The seeds were sown the 18th of April, about 15 inches asunder. I now send you one of the largest roots, which I beg you to accept and use for a seed plant. I find them not only fine, when chopped up, for milch cows; but before they get too large and old, they are very good for the table. You have enclosed, a certificate given of its size, &c when taken up, by some gentlemen who saw it weighed, after the top was off.

Very respectfully, &c.

JOHN WILLIS.

We, the subscribers, do hereby certify, that we have seen a Mangel-Wurtzel raised during the present year, on ground that was tilled in corn last year, which measured twenty-two inches in length, twenty-three and an half inches in circumference, and weighed fourteen pounds, two ounces, with the top trimmed off. The above Mangel-Wurtzel was raised by John Willis, Esq. of Oxford.

Given under our hands, this 5th Dec. 1821.

THOMAS WATTS,
THOMAS MARKLAND,
HUGH HUBBAL.

We rejoice to find so many proofs accumulate upon our files, of the high estimation in which farmers should hold the Mangel-Wurtzel. And we hope that it may soon gain that favor in the minds of all, to which we sincerely believe it is entitled.

Upon an acre of land, 27,878 roots might grow, at 15 inches asunder—in opposite directions; and if in weight they could all be made to equal this large root of Mr. Willis's, the produce of the acre, would be 175 tons of roots! which, at 56 lbs. per bushel, would be 6,500 bushels!

We place no dependence upon these extreme calculations; they will never be realized; but they may give a spur to inquiry, and, therefore, we have made them.

It has been truly said, "that to make a great crop of corn, we must first secure a large number of plants"; and how obviously just the same remark would be, when applied to this root crop.

On one hand, we are sensible that our expectations would be disappointed, and that a profitable reliance upon labour saving implements, might be prevented, if in raising either of these crops, we should suffer the plants to grow too close to each other; and, on the contrary, we are as well satisfied that many of us might often double the product of our lands, without much additional expense, if we could be induced to bestow some practical attention, upon the value of different crops, and the most appropriate areas for the growth of such plants as we do cultivate.

We will take great care of the root which Mr. Willis sends us, and will distribute the seed that it may yield with no less pleasure; to that gentleman, who has thus placed us under new obligations, we beg leave to return our acknowledgments. We are rejoiced to learn that he has at length, determined to sell young FRUIT

TREES, from his nursery, to any persons, that may apply for them; as many will now avail themselves of this opportunity, to obtain trees of several kinds of the choicest fruit.—Mr. Willis's collection has been made, chiefly by importations, during many years, and at great expense. He had originally no intention to dispose of any trees, that he might raise, and therefore he has not as many varieties as may be found in established nurseries; but such as he has are of prime fruit, he having retained none but those which are really good, and suitable to our climate. In making his collection he has succeeded far beyond his most sanguine expectation; although he has often suffered by gross deceptions, and been compelled to discard many kinds of fruit, after having bestowed great care in producing them from cuttings, not as large as goose quills, that cost him sometimes 2 or 3 dollars each.

To the excellence of his fruit, we have heard many of his neighbours frequently testify; and in terms that we should have thought extravagant, if we had not ourselves partaken of it at the house of a mutual friend. We have been credibly told, that formerly when he had no intention of selling any of his trees, he was offered from 10 to 20 dollars for some of them, and in one instance as high as 200 dollars for a single Cherry tree. In his present collection, he has 21 sorts of Pears, each of great value; 12 kinds of excellent Grapes; and in all about 150 varieties of the choicest Fruit. We will cheerfully insert a list of them, and the prices, as soon as he shall furnish the same; for in so doing, we know that we will perform a public service.

Edit. Am. Farmer.

IRON.

Every day furnishes us with some new evidence of the progress making by our enterprising citizens in the manufacture of the great staple articles of domestic consumption. We have this day had the pleasure of conversing with a gentleman of observation who has recently visited Lake Champlain, and who informs us that 23 or 24 forges are already in active operation in the counties of Essex and Clinton, on the west side of Lake Champlain, each capable of producing from 40 to 80 tons of iron annually. And that besides these Forges, there are two or three rolling and slitting mills, embracing also the manufacture of cut nails of all descriptions in sufficient quantity to supply the demand of the neighboring country, and as soon as the canal shall be completed and the public confidence in its permanency thoroughly established, other works will be constructed, and bar and sheet iron, nails and castings, will become the great articles of export from that part of the state.

Similar works are going forward with spirit on the east side of Lake Champlain, in Vermont, where bar iron and castings are likewise made in considerable quantities, at Monkton, (Finesburgh), Brandon and Plimouth. Several beds of mountain iron ore have been discovered in the town of Peru, Clinton county, a short distance from the Lake, and in Chazy, (Jewtown), Essex county. These with the old ore beds at Skene's mine, at Crown Point, will

furnish inexhaustible supplies of ore, for their valuable manufactories. The bog ore at Swan town, so useful for castings, is of the richest quality, and also in great abundance.

[N. Y. Journal.]

FROM THE NEW MONTHLY MAGAZINE.

RECEIPT FOR PRESERVING MILK.

The following method of preserving milk at sea during the longest voyage, and in the warmest climate, equally sweet as when it was first drawn from the cow, ought to be more generally known:—Provide a quantity of pint or quart bottles (new ones are perhaps the best); they must be perfectly sweet and clean, and likewise very dry before they are made use of. Instead of drawing the milk from the cow into the pail, as usual, it is to be milked into the bottles: as soon as any of them are filled sufficiently, they should be immediately well corked with the very best corks, in order to keep out the external air, and fastened tight with packthread or wire, as the corks in bottles which contain cider generally are. Then on the bottom of an iron or copper boiler spread a little straw, on that lay a row of the bottles filled with milk, with some straw betwixt each to prevent them from breaking, and so on alternately, until the boiler has got a sufficient quantity in; then fill it up with cold water. Heat the water gradually until it begins to boil; and as soon as that is perceivable, draw the fire: the bottles must remain undisturbed in the boiler until they are quite cold: then take them out and afterwards pack them in bampers, either with straw or saw dust, and stow them in the coolest part of the ship. Several years since, the writer tasted some milk on board a Swedish or Danish ship in the harbor of Liverpool, which had been carried twice to the West Indies and back to Denmark. The captain said it was milked into the bottles at Copenhagen upwards of eighteen months previous to that time; it was as sweet, or more so (we imagined,) than when first milked from the cow. The perpetual motion of the sea, in time, improves milk equally as much as it does Madeira wine.

THE FARMER.

BALTIMORE, FRIDAY, DECEMBER 14, 1821.

TO CORRESPONDENTS.

The delay which may occur, in consequence of the number of valuable articles on our file, makes it necessary for us to acknowledge some of them.

One from Mr. D., on the culture of *Flax*, and the preparation of it with economy, of time, labour and material, by means of his newly invented machinery, is highly acceptable, and will probably be the first presented in our next number.

Our thanks are due to the friend who forwarded the several addresses to, and the proceedings of the *Worcester Agricultural Society*. These addresses would all give additional value to our Journal, and we should have recorded them with particular pleasure, if they had reached us in due season in the order of their delivery—as it is, we shall take an early opportunity to publish the last one, delivered by Jonathan Russell, Esq.; and hold the others, to be inserted when a fair occasion offers.

The appearance of two articles in this number on the same subject, *Cotton*, was accidental—not to be monotonous, one of them ought to have been deferred for the next.

We have several communications on *Hemp*—for which we owe particular thanks, as they are the first springs of our especial requests. If, on perusal of them, they should be found to contain matter in addition to the satisfactory memoir from W. C. Nicholas, Esq., we shall take an opportunity of spreading them before our readers.

The field culture of *cabbages*, as food for stock, is but partially practised, yet it is strongly advocated by some very judicious farmers—we are prompted, therefore, to beg the favour of information on the subject, as to the best kind—the time of sowing—manner of planting, cultivating, preserving, &c. &c.; and let it not offend, if we hold up the memoir of our friend Mr. M., of Albemarle, on *Tobacco*, as a model for the form of communications of this nature. Further, a very few seed of the earliest cabbage, would be acceptable—and, also, of that kind, deemed most productive and suitable to be cultivated for live stock.

Jonathan Justice, writes an essay to denounce the cruel treatment, too commonly exercised towards that noble animal, the *horse*. The being who does not revolt at the idea of this species of barbarity, is not to be schooled into a sense of humanity—the most pathetic appeal, passes him, as the “idle wind.”

STRAW CUTTERS.

We have seen an improved *straw cutter*, that has been recently constructed by Mr. Jonathan Eastman, of Baltimore; and which we understand is preferred on trial by several of our neighbours, and their workmen to any other kind of chaffer. We have seen it in operation, and were pleased with its performance: a boy worked it easily, and cut one bushel of straw in a minute. Its movements are very simple, and each part of the machine appears to be well calculated to endure a long time, and perform its work to the entire satisfaction of all who may use them.

The machine occupies but a very little space, not more, with a man to work it, than 150 cubic feet. It is substantially made, and is well calculated to cut corn-stalks and husks, as well as straw, and into several lengths, from half an inch to an inch, at the pleasure of the owner; the price we are told will be from 45 to 50 \$; and in our next number we shall give a drawing of these Machines, and a full description of them.

PRICES CURRENT.

Flour, last sales, at \$6—White Wheat, \$1 33 a 1 35—Red, do. \$1 30 a 1 33—New Corn, 50 a 51—old do. 53 a 59—Rye, 60 cents—Oats, 34—Barley, 15 cts per bushel—Shirts, 23—Ship Stuff, 35—Country Pork, \$5—Eastern Shore, do. \$5 50 a 6—Marketing same as last report.

Maryland Tobacco—2 hds fine red, from Benedict, \$10—6 hds. do. good quality, at \$7 50—Seconds, \$4.

Kentucky Tobacco—A few hds. at \$6 50 and 7 50. Virginia—None.

TO FARMERS.

A single young Man, lately arrived in this country from one of the first agricultural counties in England, wishes to engage as an OVERSEER, or Conductor of a FARM in the state of Maryland, or any adjoining state—he possesses a perfect knowledge of the cultivation of land, the raising and feeding of stock, improving the breed of all kinds of domestic animals, and training such of them as are destined for the various purposes of husbandry. His terms will be moderate, and a respectable reference given as to his character and capability. A line addressed to A. B. and left at this office, will meet prompt attention.

October.

SEEDS, &c.

JOS. P. CASEY, SEEDSMAN, &c.

No. 2, HANOVER-ST.

(NEXT TO BARNUM'S HOTEL.)

Has for Sale,

30 varieties of early and late Cabbage Seeds.

12	do	do	do	Peas
12	do	do	do	Radish Seeds
12	do	do	do	Lettuce do
10	do	do	do	Turnip do
6	do	do	do	Carrot and Parsnip do
6	do	do	do	Cauliflower and Broccoli do
12	do	do	do	Melon and Cucumber do
50	do	do	do	Pot and Herb do
100	do	do	do	Flower do
200	do	do	do	other Vegetable do

100 different sorts of garden Implements, most of them patented.

Oak chests of polished Garden Tools, adapted for ladies.

120 Bright box English Spades, made of the best materials.

Garden Masts
Double twilled English Bags, large size.
New York Premium Ploughs
Wood's Freestone Patent do
Corn Shellers, Box Churns
Post Augurs, Turnip Slicers
Straw Cutters, Drill Machines
Bramble Scythes, Grass Hooks
Dynameters, Lactometers
Snathes, Handles for Garden Tools
Hilling Hoes, Grass Scythes
Irish Shovels and Flexible Tubes to relieve cattle.
Canary and Rape Seeds, for birds
Shakers' Garden Seeds in boxes, all fresh and of a superior quality.

Dutch Bulbous Flower Roots,

VIZ.

Hyacinths of sorts		Crocuses of sorts
Tulips	do	Polyanthus Narcissus
Ranunculuses	do	Crown Imperials
Double Anemones	do	English prize Gooseberry
Lilies and Irises	do	Trees.
Double Jonquills	do	Tiger Flowers.
Tube Roses		

Books on Gardening, Botany and Agriculture.

94 Beautiful Chinese Paintings of Fruit and Flowers.

Just Published.

A treatise on the culture and growth of Bulbous and other Flower Roots, and Green House Plants. Price 37 1/2 cents in boards, or 50 cents bound. It will be exchanged for Books on Botany, Gardening, or Agriculture.

CASEY has for sale, a variety of other articles in his line, printed catalogues of which can be had at his store. He will exchange his Garden seeds for any sort of American Shrubs, or tree Seeds—such as, Oaks, Hickory, Walnuts, Catalpas, &c.

A Threshing Machine, made in this city—Price \$200.

Printed every Friday at \$4 per annum, for JOHN S. SKINNER, Editor, by Joseph Robinson, at the N. W. corner of Market and Belvidere-streets, Baltimore, where every description of book and Job Printing is executed—Orders from a distance for Printing and Binding, with proper directions, promptly attended to.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL. III.

BALTIMORE, FRIDAY, DECEMBER 21, 1824.

NUM. 39.

AGRICULTURE.

FOR THE AMERICAN FARMER.

Anthony Dey's Letter,

ON THE SUBJECT OF FLAX HUSBANDRY, AND THE MACHINE FOR CLEANING UNWRET-
TED FLAX AND HEMP.

NEW-YORK, Dec. 6, 1821.

SIR, The repeated applications that I have from various parts of the United States, for information relative to my cultivation of Flax, and the newly invented machine for cleaning it, without dew or water-rotting, (or wretting as it is properly called,) has induced me, at length, to refer the applicants to the American Farmer—presuming that it would be agreeable to you and beneficial to the public, to have it published. I send you also a sample of the dressed flax.

The land on which I cultivated about 60 acres of flax the present year, is reclaimed salt marsh, adjoining the Passaic river, opposite the town of Newark, in the state of New-Jersey. The three preceding years I had put it out on shares—and deriving little or no advantage from it, I determined about a year ago to dispose of it. The tenant had not cleaned the ditches during that time, and it may be said truly, it was in a very unpromising condition to raise a crop of flax. Flax among our farmers had been very little cultivated, although the crop is considered generally as sure as any other in husbandry, yet the risk and labour of wretting and cleaning was such, that it was only raised in small quantities, and then from necessity, to supply the farmer's wants. I had never cultivated it upon my farm, or turned my thoughts towards it, until about the close of the last year, when I saw a sample of beautiful flax, resembling Floss silk, the plant of which had been dressed in an unwretted state, in a machine invented by Messrs. Hill & Bundy, of London, or one of them, and reduced to its beautiful state by some chemical process.

My attention was immediately turned to the subject, first to ascertain if my land was adapted to the cultivation of flax, and secondly, as to the profits to be derived therefrom. I did not apprehend at the time there would be the least difficulty in procuring from England the machines, and a knowledge of the mode of preparation to bring the flax into its beautiful white state.

I soon became satisfied that my land was good for raising flax or hemp, if properly managed; and after estimating the expense, and the probable result, I determined it was profitable—and if it was profitable on a small scale, it was also on a large one; and, therefore, I not only determined and entered into a contract to have 60 acres of my own land laid down in flax, but I contracted with several farmers to the extent of almost 40 acres more—the plant of which they were to deliver me, as it came from the field, at the rate of 8 dollars per ton, (under the expectation that the land would yield three tons to the acre.) Thus you see I stood committed for about 100 acres of flax.

My examination had satisfied me that in England 2 bushels of seed was considered the best quantity to be sown on an acre of land, if the object was to cultivate for flax; if for seed, which heretofore has been the great object in this country, much less quantity I required of every practical farmer, that came in my way, but I lament to say, I found not one who had made an actual experiment with flax to test the result, and the most I could obtain was, that some had

sown an half bushel of seed, and some three pecks, and it had produced so many bushels of seed, and so many pounds of flax, in one year, and about another quantity in another year—but as to the quantity of land they knew not, nor the quantity of flax by actual weight. It had been sown in broad cast, and it depended, therefore, very much upon the length of the sower's legs, and the manner of using them, whether a greater or less quantity of land was sown. One important item I did ascertain, namely—never to sow the seed on the same soil it was raised on, but to change it. These circumstances determined me to make an experiment and observation upon every measure I pursued, that I might test the result, and compare with others, who, like myself, might, unknown to each other, be pursuing a like course. I found various opinions as to what seed was best. I therefore determined to take five different kinds—namely, (1) Rhode Island, (2) from the country north or west of Albany, (3) from Queen's county, on Long Island, (4) from the town of Bergen in New-Jersey, and (5) also seed from Essex county, in the same state. I began to sow on the 30th March, and continued to sow every week until the last week in May. My land was intersected with ditches, and divided into small lots from 2 to 5 acres each, and the days of the month, and the kinds of seed sown, were carefully noted, that I might be able to judge which was the best time to sow, and the best seed.

The flax sown on the 30th March was about two inches high when the severe snow and hail storm of the 17th and 18th of April last took place. I expected it would have been destroyed, but it was not, and yielded, on weighing each and every load that came from it, a little more than one ton of the plant or stem to the acre. I considered it my worst lot. My best lot was sown the last week in April, upon a green sward, and harrowed well—it yielded a little less than 2 tons to the acre. I impute this difference principally to the circumstance of the storm on the first lot which retarded its growth, and gave the weeds an opportunity to struggle with the plant; and to the almost total absence of the weeds on the green sward. The whole crop averaged about one and an half tons to the acre.

I cannot say that I perceived any difference arising from the kind of seed sown—but the time when sown is important: in my district of country, I consider any time from the 20th April to the 10th May, the best time. All the seed was foreign to my soil. It was all choice seed of its kind, and had been selected and cleaned by the seed-merchant in New-York, and set apart by him to sell to the farmers for seed, except one single parcel of seed from Essex county, which was not so. This seed was foul, having a considerable quantity of Milberry, as it is called in England, or as it is sometimes called with us, Negro-head. I remark, in order to show the necessity and importance of having clean seed, that one of my friends, whom I had prevailed upon to sow 10 acres, lost his whole crop, that was completely destroyed by the Milberry—it entwines itself around the flax plants, and completely brings them down to the earth. If he had taken the trouble of sending to the city of New-York, and obtained clean seed, it would not have happened.

A gentleman from Columbia county, in this state, informed me he found it necessary to change his seed every year, and he found the seed raised on land near the sea, better than what was raised north or west of him.—That in two years his flax would degenerate so much as to make the crop scarcely worth pulling. I have now a hank of flax sent me from Minisink, a town in Orange county. It was prepared and cleaned

in the old way, and measures 4 feet in length, as dressed, and is of a fine quality. It is called Supling flax, and produced 900 weight of clean flax, (as it is said) to the acre. I have sent to procure a quantity of the seed at any price, that I may cultivate it for the seed.

One of my lots was sown in the morning of Saturday the 19th of May—there was a shower in the afternoon, and on Monday morning the flax was bursting through the earth throughout the lot. It was a fine lot of flax, free from weeds—but according to my judgment, and that of my farmer, the best lots of flax, as I have before observed, were those that had been sown between the 20th of April and the 10th of May; and there was no perceivable difference between them.

As I sowed two bushels of seed to the acre, with a view to a crop of flax, and not seed, so I pulled my flax as it was passing from the blossom to the boll. The seed was not yet formed—the boll was in milk, but it will nevertheless yield from 4 to 5 bushels of seed to the acre, fit for crushing or feeding.

I would recommend, if the farmer cultivates for flax, to sow 2 bushels to the acre, and to set apart one or more acres for seed, and to sow three pecks to the acre; from all the information I have been able to obtain, that is the best quantity to be sown, if you cultivate for seed, but the flax when dressed will be too coarse to make fine linen, and cannot be made as white by my process of bleaching.

As I contracted for all my flax concern, I paid at the following rate, namely—

\$3 00 for ploughing, harrowing, and sowing seed, per acre,
3 00 for two bushels of seed, per acre,
3 00 for pulling and spreading on the ground, per acre,
1 50 for drying, bundling, and carting to the burn, per acre,

\$10 50

where my flax now remains until my machine can be set in motion by horse or ox power, which I hope will be before January next.

In the month of February or March last, I learned that it was impossible to obtain the English machines; the British government had refused, on the application of Mr. Rush the American Minister, to let them come. I then directed my attention to having them made in imitation of the English machines, as represented in the 8th number of the Journal of Arts and Sciences, published in London, and re-published in New-York by Mr. Eastburn. I employed two persons in this city, who undertook to make them, warranted good; and after keeping me in suspense until August last, produced at length a Breaker and Rubber, for which I paid them \$200, which are literally good for nothing. At the time these machines were about to be delivered, I employed Mr. James Macdonald to set them, together with others I contemplated to have made, in operation, by animal power—but finding them, as I have before mentioned, useless, I threw them aside, and employed Mr. Macdonald to make me one on an entire new plan. This has succeeded to my wishes, and a certificate given me by several gentlemen who saw the machine operate, is as follows:

Certificate.

"We were present at a trial of a newly invented machine, made for dressing flax or hemp in an unwretted or unwretted state, belonging to Messrs. Anthony Dey and James Macdonald, of this city. The machine is constructed to go by water or animal power, but on the trial, was worked with facility by

four men. One of the subscribers held a watch, by which, it was ascertained that three ordinary lengths of flax plant, unwretted, were carried completely through the machine in less than one minute; and three lengths of hemp in little more than one minute.

"It is estimated, that when driven by the proper power, the machine will clean one ton of flax plant, or hemp, wretted or unwretted, in a day. And Mr. Dey exhibited, and gave to each of us a sample of flax, in a fine, beautiful, white state, resembling floss silk, which he estimates, from the experiment he has made, may be cleaned through the machine, and reduced to its beautiful state for about two cents a pound; and informed us that in doing it he did not make use of any other preparation, than is to be found in every farmer's house in abundance, and which was done after the flax had passed through the machine."

New York, November, 1821.

J. L. OGDEN.

DAVID B. OGDEN,

RUDOLPH BUNNER,

REHARD VARICK,

LE RAY DE CHAUMONT,

GEORGE BRINCKERHOFF,

BENJAMIN L. SWAN,

GEORGE GRISWOLD."

An opinion has gone abroad, that this machine is nothing more or less, than a copy of Hill and Bundy's machine. The following affidavit, independent of one moment's view of the machine, will satisfy every one, I hope, to the contrary.

Affidavit.

"William Wright, at present of the city of New-York, mill wright and machine maker, being duly sworn according to Law, did depose and say, that in the year of our Lord 1817, and part of the year 1818, he resided at Rathbone-place, in the city of London, and worked at No. 422, Oxford-street, London—part of the time aforesaid, he was employed in making the breaker and roller of Hill and Bundy's flax machine. That in the year 1819, he left England and went to the city of Philadelphia, in the state of Pennsylvania. That in the month of October last, he came to the city of New-York, and has been employed under the direction of James Macdonald, in finishing a hemp and flax dressing machine for Anthony Dey. That having made many of Hill and Bundy's machines, he is enabled to say that the one constructed by Mr. Macdonald for Mr. Dey, is totally unlike Hill and Bundy's, having nothing about it at all like those of Hill and Bundy; and as far as he knows, or believes, it is unlike in every particular, any machine he ever saw or heard of, for breaking and cleaning hemp or flax."

(Signed)

WILLIAM WRIGHT.

Mr. Macdonald is a native American, and in justice to him, I ought to say, that he possesses first rate talents as a civil engineer—he is the inventor of several machines, which, in point of mechanism, are considered by men of skill and judgment, of the first order—yet his talents have hitherto been buried. I hope, however, that this last effort of his genius, the hemp and flax machine may bring him into notice, and that he may yet produce many things of importance to his country.

After several experiments I produced the sample of flax I now send you. When my patent right to this discovery is secured, I will then disclose the process. Suffice it to say at present, that the material, with which it is accomplished, is not only cheap, but in every farmer's house in abundance, and will in no degree, I think, injure the quality of the fibre. And while Hill and Bundy's flax cost them 6d sterling per pound, equal to about 11 cents of our money, to clean and bleach, I am satisfied from the experiments I have made, that cleaning in the machine and bleaching by my process, can be done for about 2 cents a pound.

It remains for me to shew, that it is profitable to

raise flax. I know an opinion prevails, that flax is an exhausting crop, and that two crops cannot be raised in succession; but I have never yet met with an individual, who says he has tried it. Of the same 60 acres which I cultivated this year in flax, I contemplate, to put apart, again in flax the next season, and then seed it down with grass seed, and the residue, with about forty additional acres in hemp. I shall be able then to test the principle. I do not believe, that upon such strong soils as our reclaimed marshes, we can exhaust the soil, or any principle or peculiarity in it, by the same kind of crop in two or three successive years, where those crops are not permitted to go to seed.

Buckwheat is considered a great scourge, when it is permitted to go to seed; but buckwheat is sown for manure, and when in blossom, ploughed under. It must, therefore, I think be the seed, which exhausts that principle or peculiarity in the soil which requires a change before the crop is renewed.

Admitting, however, that I am wrong, yet there is hardly any farmer, that cannot prepare and set apart 10 acres out of his farm annually for flax. This land should be put in good condition, for unless it is, it ought not to be sown with flax; and if in good condition will yield, I think, beyond doubt, one and an half tons of plant or stem to the acre, the English calculate three tons to the acre, but I can only say I think this is incorrect.

There is a market at Patterson, in New-Jersey, to make sail-cloth, and in our cities, for more flax to make cordage, than will be raised these five years in our country, after retaining what is required among the farmers for family purposes.

Suppose then, a farmer raises 10 acres of flax at one and an half tons of plant to the acre. The owner of one of the flax and hemp machines, can afford when flax brings 15 cents a pound, to give 15 dollars a ton. Then 15 tons, the produce of 10 acres, a 15 dollars per ton is \$225

Deduct.

At the same rate which I paid in cash for like services, but which is done by the farmer, and therefore, saved to him, v. z :

Ploughing, sowing and harrowing	\$36
10 acres, a \$3	30
20 bushels of clean seed a 1.50	30
Pulling and spreading, a \$3	30
Drying, bundling and carting to the barn or the machine, a 1.50 per acre	15
	\$120

In other words, \$12 per acre clear profit. And what can a farmer in these times raise equal to this? And if he will take his flax to the machine, and have it cleaned, and receive only as much as he could get in the old way, after wretting and dressing he will receive more money.

I have been offered 25 cents per pound for my crop, which will yield me upon a fair calculation, six thousand dollars.

I will now furnish an estimate of the expense and value of the machine, from which you can form an idea, whether the patent right for a town or county, is worth purchasing by an enterprising man. The proprietors have sold, and propose to sell the right to use the machine, in states, counties, or townships—The machines will be manufactured for the present in New York, at the lowest rate, and sold without profit.

It is estimated that two machines will cost, including the machine to go by horse power, \$1200, and by water, then about \$1000; and that a horse or a pair of oxen will drive two machines.

The machine is 4 feet wide, and calculated to dress an ordinary bundle of flax, weighing 2 pounds at a time, and it will take through three lengths of such flax in a minute. That data will furnish a much greater quantity per day, (say 10 working hours) but I have no doubt each machine will dress, including all interruptions, one ton of the plant in a day. Having been obliged very hastily to take down the ma-

chine to prevent pirates from robbing us, I did not make an estimate of the yield of the flax, in the manner I intend shortly to do. Hemp was tried, and yielded 33 per cent clear fibre. I adopt, therefore, in the following estimate, the English calculation.

One ton of plant will yield, according to Mr. Millington's testimony under oath before a Committee of the British House of Commons. (See Journal of Arts and Sciences, No. 8 and 9, p. 32) at the rate of 25 pounds of fibre, fit for the bachel or hatchel, for every 100 pounds of the flax plant.

Two Calculations.

1. The produce of 25 pounds of flax at 10 cents, which I think is the very lowest it will ever be sold for.

2 tons, produced by 2 machines, at the rate of 25 lb. for every hundred is in }	1000 lbs.
	10 cts.

Each day's earnings of 2 machines, is \$100 00

Deduct.

Suppose you give \$20 per ton for flax plant, say 2 tons a 20 per ton, is	40 00
2 men, 4 boys, 1 horse or oxen, say	5—45 00

Nett profits per day,	\$55 00
Multiply by 300 working days in the year,	300

Profits per annum, \$16,500 00

According to Mr. Millington's estimate in the Journal of Arts and Sciences, above referred to, No. 9, page 33, nearly 2-3ds of the fibre is saved by the new process.

2d. Suppose you clean flax for the farmers for toll, and give them more than they can get under the old system.

If nearly 2-3ds is saved by the new system, you can give the farmer 10lbs. and reserve 15lbs. out of every 100 lbs. of plant for the machine, and two of these machines will dress about as much as an ordinary township will raise. And every additional machine required, will be so much the more profit.

Then say 13lb of clean flax out of every 100 lbs. in 2 tons of the plant, is	600 lbs.
	10 cts.
	60 00
	5 00

Deduct expenses as above stated

Say 300 working days in the year

Say per annum, \$16,500 00

The machine thrashes the seed.—In neither of these estimates have I included the tow, or the benefit of the seed, nor of the boon or woody substance. (See Journal, No. 9, page 34) which is said to be, when unwretted, good food for horses, cattle, &c.

I will close my remarks, after stating one occurrence, which will speak louder than all the above calculations.

Last spring a wager was laid, as to the weight of a piece of Irish linen, the retail price of which, at the stores in this city, was 25 dollars. A piece was obtained and weighed six and a half pounds. Now then, suppose 10 pounds of flax was used and wasted in making this piece of linen, which at 20 cents per pound would make our farmers soon rich, and would cost two dollars. We pay then twenty-five dollars, to whom and for what? Let every thinking man ponder on this subject—then we shall unite, heart and hand, to employ our own means—we will retain our money, and add to our independence.

Respectfully, yours,

ANTHONY DEY,

Corner of Nassau and Cedar streets.

John S. Skinner, Esq. Editor American Farmer.

PROCEEDINGS

OF THE

AGRICULTURAL SOCIETY,

OF PRINCE GEORGE'S, MD.—No. 2.

Report on the Varieties of INDIAN CORN.
BY W. HEBB.

In consequence of the call made on me by the Society at its last meeting, I have thrown together the following statement of facts on the different varieties of Indian Corn. The first that attracted my notice was a yellow flint corn which I found growing on an estate that had been for many years under the direction of a very old man of considerable experience, and considered by him the most certain and productive crop on such soil—a stiff livery white-oak land, hard to cultivate, and very uncertain.

The second was called Bastard Gourd Seed, probably a mixture between that and the white flint, but was not thought productive either on stiff or light soil.

The third was Gourd Seed, a white corn, with very long narrow grains, 32 rows on a cob of uncommon size; many single ears of which would fill a quart pot when shelled; this was considered the most productive corn then known on light loamy land; but the moisture retained in the cob uniformly destroyed the corn in the crib in April or May; the size of the stalk was also objectionable, as tending unnecessarily to exhaust the soil. On this subject I differ very much from a practical farmer, and a great corn maker, of Virginia, who recommends the production of offal to increase the stock of manure, which is certainly an art of supererogation. I would as soon think of increasing the quantity of liquor in a cask by drawing out at the spicket and returning it at the bung, as to make manure in that way.

The fourth variety is generally known by the name of Red Husk, from the cob being uniformly of that colour. This is a white corn, with twelve to fourteen rows on a cob, and a good bearer—but proved rather late for improved husbandry.

The fifth variety was produced by a mixture of the above, and a very small Guinea Corn, bearing from 20 to 30 ears to a stalk, according to the method adopted by Joseph Cooper, of Jersey, (as I had never been able to procure any of his corn) the fourth or fifth year, brought the small grains up to the size of the largest—but the species proving late, it was tried on a pale yellow, much forwarder, and is now very highly approved of as being more productive, and possessing more of the requisite properties than any other: it now partakes of all the originals, is yellow, white and blue, on the same ear.

The sixth variety is a pale Yellow, bordering on the Flint, a great favorite in Frederick county, but considered here a very bad bearer.

The seventh is the Genesee Yellow, with immense stalks and cobs, and short small grains, bearing generally two ears to a stalk, but measures badly when shelled.

The eighth variety I have lately seen growing at the Wood-Yard, much admired by the proprietor, who considers it a good bearer, on a

fine loam, called Tuskarora, a white corn, with 14 to 16 rows on an ear—generally two to a stalk of great size.

The ninth is an eight rowed corn, called here Walker's Corn, from the circumstance of a man by that name making considerable crops of it on gravelly, barren-looking land.

The tenth, Cooper's Corn, on which the first experiment has been made this year of half a bushel, part on stiff, and part of light land, both poor—and from the result, I am induced to believe it more productive than any I have tried: surpassing that which I raised in the same way. Whether I was in too great a hurry to get the small kind up to size, and thereby caused too great a preponderance on the side of the large corn, and caused it to partake less of the more prolific kind, I know not: but such is the fact, the grain is yellow, and smaller than the sort I raised; but the ears are more abundant, for I found many stalks with from three to five ears on the land described here.

The eleventh species is the Callico; the grains all streaked with red. This is a forward corn, something of the Gourd Seed—a pretty good bearer—used in the lower counties chiefly for re-planting.

The twelfth is a Flinty forward Corn, remarkably white and hard, with eight rows on the cob.

The thirteenth variety is the Sugar Corn, also an eight rowed corn—rather more forward than the other two.

The fourteenth is an unprofitable sort, called Pop Corn, used to feed chickens, and to amuse children.

These are all the varieties that have come under my observation—but I am convinced that a new variety might be produced every year by planting any two of the above varieties near each other. Whatever kind may be used for a principal crop, it will be greatly improved by selecting seed from the stalks, that produce the greatest number of ears—this has been proved from the practice of many.

Were I to offer an opinion on the culture of either description, from the experience of many years, it would be to recommend deep ploughing in the fall or winter, turning in every thing like verdure or trash on the land, preparing it well, and planting it early in the spring, with quick tillage, so as to complete the work on it by harvest, as the best means of ensuring a crop, and guarding against the droughts of summer; distance four and a half to five feet each way, with two plants in a hill: by this method hoeing is useless, and may be exploded. The heaviest crop I have ever seen was 13 barrels to the acre, on rich Frederick land, planted as above, with three stalks in a hill. The greatest crop I have made, was eight barrels to the acre, drilled in rows six feet apart, and 14 inches in the drill—but this method increases hoe work. I have seen an equal quantity made for many years in succession, by planting three feet each way, with one stalk in a hill, on highly improved, well cultivated land; but this is more affected by drought than either of the other methods.

WILLIAM HEBB.

St. Olyth, October 14th, 1821.

Swedish Turnips.

The following account we have received from Joseph W. March, Esq. of Greenland, in answer to our request that he would furnish a statement of the manner in which he had cultivated an acre of Swedish Turnips, the last season. We owe him many thanks for his compliance with our wishes; and we trust that his account will attract the attention of our farmers to the cultivation of this valuable root.

London Farmer's Journal.

GREENLAND, November 30, 1821.

The manner in which the acre of Swedish Turnips was cultivated (which has been entered for a premium) on the farm belonging to my mother, and under my care, is as follows.

The sward was ploughed up in the fall of 1819, and planted the following spring with Indian Corn, and manured with compost dressing made in the hog's yard, at the rate of about ten loads per acre.

Last fall about one half of the lot was ploughed, and it was intended the whole should have been ploughed, but the early hard frost prevented. Last spring about eight loads of compost manure was spread on the ground and ploughed in, two thirds of which probably was swamp and mixed with barn yard dung.

On the 18th of June, I began to plant the seed. After harrowing the ground, seven furrows were made lengthwise the piece, three and a half feet apart, with a horse plough. Into these furrows good barn yard manure was shovelled from a cart passing along side, at the rate of about 14 loads per acre. Then a strong ox-team with a good plough passing up on one side and down on the other, plunging very deep, formed a high ridge directly over the manure. After the seven ridges were ploughed, a horse going between two ridges with a light roller levelled the tops; then a hoe was drawn along to make a small furrow for the seed. Previous to dropping it, some manure was strewn along at the rate of four to five loads per acre, in order to force the growth of the young plants, when first up that the fly might not destroy them. A boy then dropped the seed along the ridges, a few in a place about a foot apart, then covering them with a hoe completed the manner of sowing.

The principal labour in the after culture, was the first weeding and thinning out the plants. But as this was done in the season of hay making, at times when the weather was unfit for making hay, the expense is considered trifling. I should judge, however, that the labour of the after culture is about equal to that of Indian Corn.

The produce of the acre is EIGHT HUNDRED AND THIRTY FOUR HEAPED BUSHELS OF TURNIPS, beside, of leaves which was judged to be about five tons. The expense of harvesting was comparatively very small; the whole being done in a part of one day. Upon calculation made of the time, and number of hands employed, it appeared that five men could easily have pulled them up, gathered them into carts, and housed them (after hauling them into a distance of more than a quarter of a mile) in one day.

From the Morning Chronicle.

SIR,—After observing the accounts and dimensions of several large turnips in the public prints, raised by our Maryland Farmers, measuring 28 to 29 inches, &c. I was induced to examine my turnip grounds, and try to become a rival. Having found several of 29 to 30½ inches in circumference, I began to anticipate a little puff too: but in the mean time, a turnip was announced from the eastward, where all the wonders come from, of *forty-five inches round*.^{*} Finding all my hopes, in this way, totally eclipsed by this mammoth of the east, I began to consider that *one single turnip*, however large, counts but little in a family, and not much in market—therefore thought I would try the aggregate of my crop, and the ground occupied, being in two lots, one containing, by survey, two acres, two roods and nine perches, and the other three roods and five perches, making in the aggregate three acres, one quarter and fourteen perches, exclusive of a *small marshy point*, supposed to contain forty to forty-five perches, and which had but a very few turnips upon it: and notwithstanding about a quarter of an acre, in the large lot, was so low and wet, as to produce but little, and ninety-two bushels taken out of the small lot for market before they were near full grown, and the supply for family use from the time they were large enough, I have gathered by my count 1665 bushels. I laid off, in the large lot, five perches one way and eight the other, making a quarter of an acre, from which I gathered, *when neatly trimmed for market*, 155 bushels, good measure. I also laid off in the small lot, two perches one way, and ten the other, making one eighth of an acre, from which I gathered eighty-three bushels and three pecks. I weighed a bushel, and find them to weigh sixty-one pounds—thus the weight of produce on the *one eighth* of an acre, appears to be 5,108 pounds—that on the *one fourth* 9,455, and that upon three acres, one quarter and fourteen perches 101,565 pounds weight. I have adopted a mode, which I think beneficial—that is, by every hand engaged in pulling, to carry a knife in his hand, and clipping the roots of all the large turnips off before they throw them to the heaps, the tops will be much cleaner, and the cattle eat them better.

Your's respectfully,

T. HILLEN.

^{*} Stone Masons have a rule of measurement for chimneys, called "*girth and half girth*," that is, they measure once round and half round again. I have heard of an employer, who observed his mason measuring his work in this way, asked him what he meant by that; he answered, that he meant to keep going round, till he got enough—though I don't suppose there were any masons just in the neighbourhood of this big turnip.

Curious Botanical Library.

I must never cease to remember the ingenious and valuable present of the late king, Lewis Bonaparte, to the collection of the Library at Dresden. It is the work of a German, and con-

sists of 135 volumes formed of wood. The binding of each book is formed of a different tree; the back is ornamented with pieces of the bark, and such mosses, lichens, and other parasitical plants as characterize the species. Each volume opens, as it were, in the centre of the leaves, and contains the bud, leaves, flower, fruit, farina, and every other part in any degree illustrative of the nature of the tree. It affords a complete and scientific exemplification of 135 trees, beginning with the oaks, and ending with the juniper; and, in fact, may be considered as a brief and perfect epitome of the German groves and forests. In the case of plants, such as the rose & juniper, the ligneous parts of which are not sufficiently large for the purpose required, the binding is formed of some ordinary wood, sprinkled over with fine moss, and then elegantly barred with the rose of juniper wood giving the volume the appearance of a very valuable old manuscript with iron clasps. On the whole, it is one of the most ingenious and complete productions I have ever seen.

Blackwood's Magazine.

From the London Farmers' Journal.

SOME FACTS HIGHLY INTERESTING TO BREEDERS.

Howland Street, Sept. 3, 1821.

SIR,—The extensive circulation of your Journal amongst practical agriculturists, makes it the proper medium of communication between them and scientific men, as to any discoveries which the latter may make, which appear applicable to use in the rural arts. I avail myself therefore of the opportunity of stating, that a communication was some time ago made to the Royal Society, by *Earl Moreton*, which has lately appeared in the *Philosophical Transactions*, whence it appears that his Lordships possessed a male animal, called a *Quagga* (by the Hottentots, in whose mountains they abound), in most respects closely resembling the Zebra, but of a smaller size: his Lordship had also a young chesnut coloured mare, of seven-eighths Arabian blood, which had never been bred from, out of which he determined on obtaining a foal by the *Quagga*: this accordingly happened, and a female was produced and grew up, bearing, both in her form and in her colour, very decided indications of her mixed origin, and proved to be hybrid, or incapable of breeding.

The mare, soon after bearing this colt, was sold to Sir Gore Ouseley, who since has bred from her, by a very fine black Arabian horse, two colts; these Lord Moreton went to see, and to examine them; the one a two-year-old filly, and the other a year-old colt, both of which his Lordship found to have the character of the Arabian breed, as decidedly as could be expected, where fifteen-sixteenths of the blood was Arabian; but both in their colour and the hair of their manes, they shewed a striking resemblance to the *Quagga*! His Lordship gives in his paper, a minute description of these several points of resemblance: and after this had been received at the Society, Dr. Wool-

aston, one of its members, distinguished for his very extensive knowledge, had the opportunity of examining the Arabian horse, the mare, the filly, and the colt, and of fully verifying his Lordship's descriptions.

Dr. Woolston, happening soon afterwards to mention these circumstances to Daniel Giles, Esq. of Youngsbury, Herts, he found, that some years ago, Mr. Giles had witnessed circumstances somewhat analogous; which he in consequence stated, in a short paper, which is printed, following that of Lord Moreton. Mr. Giles had a black and white sow of Mr. Western's breed, which he put to a boar of the wild breed, of a deep chesnut colour, which boar was soon after drowned by accident. The pigs produced (which were the sow's first litter) partook in appearance of both boar and sow, but in some the chesnut colour of the boar strongly prevailed. The sow was afterwards put to a boar of Mr. Western's breed: the produce was a litter of pigs, some of which were stained and clearly marked with the chesnut colour which had prevailed in the former litter. This sow had afterwards another litter of pigs, by a boar of Mr. Western's breed, and some of these pigs were also slightly marked with the chesnut colour: although in many years experience of Mr. Western's breed, Mr. Giles had never, in any other instances, observed the least appearance of the chesnut colour.

The above very curious and interesting facts make me desirous of requesting the favour of such of your readers as may have experienced any thing similar, in which the male appeared to communicate his properties, through the female, to the young, of a succession of births, by other males, that they would state the particulars in your Journal: in order, should the fact appear to be more common than has been suspected, that breeders may be put fully on their guard against suffering the contamination of their choice females, by connexion with any but the choicest males of the breed they may be desirous of improving.

I am your obedient servant,

JOHN FAREY, Sen.

On the Turnip Fly.

From the same.

Having had the pleasure of conversing with Mr. Hall, who favoured us with the experiments to ascertain the existence of the larvæ of turnip beetles in the seeds of the turnip, we have to state that our comments on his article were rather hasty, namely, *that we should have been better satisfied if he had found the fly*. It appears highly probable from the explanation, that there is a minute larva (whether of the turnip beetle or not) in many turnip seeds, which are yet capable of vegetation; it is therefore a process of some consequence, and interesting as an experiment, at all times to swim the light seeds (by putting the quantity in water or brine), and skim them away. The larvæ in old seeds might not be living; and in new seeds, having to pass through the *chrysalis* form before they became beetles, they can hardly be

supposed to become the beetles which, in five or six days, are busied in destroying the plants of that crop; but this, though not likely, is uncertain; and to err on the safe side, has always been held a mark of prudence.

FOR THE AMERICAN FARMER.

MANGEL-WURTZEL, ITS CULTURE, EXCELLENCE, AND GREAT PRODUCE.

DECEMBER 1st, 1821.

Dear Sir,—As you have expressed a very favourable opinion of Mangel-Wurtzel in No. 5 of your present volume, I have thought you might be pleased with the account of an experiment, in a small way, made with great care and attention, under my particular observation; which goes to confirm its excellence above any other root I have ever cultivated.

The ground selected was a rich black loam, upon a clay bottom, containing thirty-two square rods, or one-fifth of an acre. It was manured with four loads of rotten hog dung of forty cubic feet per load. After being brought into fine tilth, and the surface raked smooth, it was laid out in eight beds, four rods long, and one rod wide; and immediately, 4th May, sowed in rows one foot apart. June 2d, was weeded, and the plants thinned, so as to stand, as nearly as possible, three inches distance in the rows. June 20th, began to thin by taking up every other plant, leaving them at six inches apart, and gathered eighty-eight bushels (crowded & sheaped) the roots being about the size of one's finger—these, with their tops, were boiled for my hogs, and devoured voraciously. July 4th, commenced thinning again, so as to leave the plants one foot apart, produce one hundred and four bushels. Their growth now was very rapid, so that the 20th July, began the last thinning which was done, by entirely taking up every other row—thus leaving the crop standing for winter use in rows two feet apart, and the plants one foot distant in the rows. The roots were at this time generally as large as one's wrist, and the tops very luxuriant. The produce one hundred and twenty-six bushels.—In the autumn the tops were cut off close, as we wanted them for use, and measured sixty-three bushels—and the roots pulled producing one hundred and fifty-two bushels, weighing sixty-two pounds each.

RECAPITULATION.

1st thinning tops & roots 88 bus. crowded and (heaped.
2d. do. do. 104 do. do.
3d. do. do. 126 do. do.
Roots dug in Autumn, 152 do. w't. 62 p. bush
Tops, 63 do.

TOTAL, 533 bushels upon thirty-two square rods of ground, or at the rate of 266 1/2 bushels per acre.

This result is extremely gratifying, as I have not only a crop of roots at the rate of 760 bushels per acre, for winter consumption, but was also accommodated for nearly six weeks with a summer supply of most excellent food for my animals, at the rate of 1903 bushels per acre.

Should you think it useful I will detail another experiment made on 32 rods of land adjoining the above, which will show the advantage of cultivating Mangel-Wurtzel, when followed by cabbages the same season, in a still stronger point of view.*

A Massachusetts Farmer.

* As we know and respect the writer, we will thankfully receive and gladly publish it.

Editor Am. Farmer.

Editorial Correspondence.

Extract, dated Worcester, Mass. Dec. 2.

HOW TO PRESERVE BACON.

* * * * * I have perceived by notices in the American Farmer, that some of your southern friends are at no little trouble in preserving their bacon from the depredation of skippers. It may be of some service to them to be informed, that if they will pack their bacon in Oats, in such a manner as to be completely covered by the grain, and place it in a cool part of their cellar, they will receive no inconvenience, either from bugs, worms, or maggots. This method has been practised for several years with complete success in my mother's family. It is easily tried by any one having doubts of its utility; is less troublesome than preserving bacon with the assistance of alder, and without expense, as the oats, when no longer wanted for this use, may be given to horses, who will not refuse them. It is said that cheese may be kept free from inhabitants in the same manner.—Of this I have no doubt, but cannot speak with certainty, having no personal knowledge of its application to this article.

Sir,

Your most obedient servant,

JOHN W. LINCOLN.

John S. Skinner, Esq.

The Benign Influence of Agricultural Societies.

WASHINGTON, DEC. 13, 1821.

* * * * * In the division and reduction of estates in Virginia, we greatly need, after overstocking all our learned professions, some strong impulse to call our intelligent youth from dissipation, to rural labour. The numerous societies, in aid of Agriculture, which have recently sprang up in our country, and their powerful auxiliary, the American Farmer, which I trust, have this salutary effect, by ennobling the plough.

To contribute my mite towards this patriotic purpose, will afford sincere pleasure to

Your respectful servant,

WOOL—how should it be prepared? and, what are its prices?

FAIRFAX COUNTY, Virginia.

DEAR SIR,

You would render an essential service to many of your subscribers, by obtaining from some of the northern manufacturers, and purchasers of wool, directions as to the proper mode of preparing and bringing it into the mar-

ket. Transactions in this article would also be very much facilitated by the regular publication in your paper, of its prices, at the large manufacturing establishments, and in the principal market towns. These publications should of course be accompanied by particular statements of the quality and condition of the wool sold. With the hope of inducing others to pursue the same course, I herewith transmit you the prices given during the present year, in Alexandria, D. C. now becoming a very important and extensive wool market.

For common Wool, washed, 40 cts.
Merino do. from half to full blood, 40 cts.
in the dirt,

Very respectfully,
Your's, &c.

☞ We trust that the above information will be promptly given—and by none can it be better done than the manufacturers themselves: such communications will be particularly acceptable.

Editor Am. Farmer.

VACCINATION OF DOGS—Will it prevent "The Distemper"?

It is stated that vaccine inoculation prevents what is called "The Distemper," so fatal to the canine race. I wish that those who make the experiment, and find it fail, would impart their ill success, to be inserted in your useful paper. As the dog is the friend of man, and highly valued, many are endeavoring, by vaccine inoculation, to prevent the disease above-mentioned; and if silence be preserved, your readers will conclude that a remedy is discovered, and the lives of many favorites will be thus preserved. Farmers will thank you, as the dog guards flocks, barn-yards, and houses; the sportsmen will also be grateful to you; and you will also receive the smiles of the ladies. My sportive barking puppy, which has been vaccinated, seemed to urge me to mention this to you, that his brethren might not incur the distemper—you will, I think, be curdled if you do not insert this, although I cannot write dogmatically.

Your's, &c.

J. S. SKINNER, Esq.

Rotation of Crops.

"I have been convinced by four years experience, that the best course of crops, is 'the five field'; 1st Corn, 2d Oats, 3d Wheat, 4th mowable Clover, and 5th Pasture: under this system oats are invaluable. I could give evidence upon evidence, for the solvency of this plan, its cheapness and productiveness."

F.

The opinions of our friend F, have great weight with us and those who know his ability and opportunities to form them; yet, for the benefit of all, we hope that he will favor us with the evidences which satisfy his mind, as to the excellence of "the five field" course of crops above described. Edit. Am. Farmer.

PHILADELPHIA, 14th Sep. 1821.

Bene Oil—Paper Manufacture—Wool, &c.

Dear Sir,—Some delay occurred before I received from my friends Doctor Mase and Mr. Staines, the oil of Sesamum from Mr. McQueen and General Forman. It was used in

salads for my table, and was found to be good oil, which might be given to our friends without fear of suspicion, disapprobation, even observation—though in butter, cream, and salad, and other oils, our best tables are particularly nice. This, for the age of the oil, is surprising, and stamps a bright value on it. But for the certain authority, it would appear incredible, that the oil of Sesamum will keep so well and so long. The seed you sent I put into the hands of a nice and careful gardener. I should be glad to have some of the seed sent to Joseph Gales, esq. Raleigh, N. C.; to Wm. Lee, esq. Auditor of the Treasury, Washington City; to Augustus Sacket, esq. Rutherfordton, N. C.; to the Post-Master at same place; to Gen. W. W. Erwin, Morganton, N. C.; to the house of Waightstill Avery, esq. near Morganton—to Dr. McIntire, Rutherfordton, N. Carolina.

I observe that our cotton manufacture is thriving by means of our present duties. The English are afraid of our growing success in it. New operations in importing wool occur. This is a great market for good common wool, and for not coarser; and not a bad one for fine wool. The prices of superfine cloths and cassimeres, shawls, &c. are too high here, and in Britain, of course, the manufacture is amply encouraged. New woolen factories are extending. The immense scale of good and fine cord-winders' goods are much too high in all our great towns.

A gentleman from Canton last week, informed me that the Chinese make immense quantities of paper out of the Bamboo. They do not much cultivate flax or hemp, nor do they import rags. Cotton, silk, wool, and skins are used in manufactures. But linen and hempen rags, our materials for paper, must be rare, dear, and almost unknown and unused. This deserves notice, for the sake of our agriculture, to supply the materials for manufacture, which is a rational and beneficial object. Little hints may produce great consequences.

Very respectfully, yours,

The Vermont Oxen, raised by Mr. Marsh, said to be the largest ever fattened in this country, have been purchased by two gentlemen of Albany at the enormous price of nearly one thousand dollars, and shipped on board a sloop for New York. They will be exhibited here on their arrival.

A new invented system of propelling boats by steam, has been invented by a person in New Bedford, by which a boat 26 feet long has been propelled, by two men, four miles in twenty minutes; and it is thought the plan may be applied to propelling the largest steam boats with more velocity and much less power than is required by the present system.

The following observations on the *Dry Rot* in timber, are found in the second volume of Professor Siliman's "AMERICAN JOURNAL OF SCIENCE—more especially of MINERALOGY, GEOLOGY and other branches of NATURAL HISTORY, including, also, AGRICULTURE & the ORNAMENTAL, as well as useful ARTS."—A work of science, which does credit to our country—we apprehend, however, that it is too severely and exclusively scientific to be patronised as it

deserves. Our country is not old enough to abound in men of immense fortune; and fortunately our institutions, regulating the distribution of property, will continue to restrain the tendency of society to divide itself into Lords and Paupers. Hence, we have not many men of leisure for the study of the abstract sciences; and periodical works, which do not connect themselves with the practical, money making, every day pursuits of life, are apt to perish or to draw a languid subsistence from the zeal and personal sacrifices of their conductors.—We do not know that this apprehension should apply in any measure, to the work in question—we hope it does not—and in the act of borrowing from its instructive pages, we wish to bear our humble testimony to its claims on the American public.

Edit. Am. Farmer.

Observations on the DRY ROT, by Colonel GEORGE GIBBS.

The late extraordinary decay of Timber, by a disease, termed the dry rot, in the commercial and military marine in Europe, has excited much attention, and called forth many schemes for prevention or cure. But I have not been fortunate enough to meet with any account of its cause, or any proposal for a remedy, which could satisfy me, still less the gentlemen skilled in naval affairs.

It appears that this disease affects wood, whether dry or moist, though more in the latter case: that it has become more common within thirty years, and since that time large ships have been discovered to be entirely rotten on the stocks, before the preparations were made for launching them.

Steaming the Timber has been tried in America, and found injurious; oil and paint are ruinous; and many other operations have been recommended, some of which were found injurious, others ineffectual, others too costly for trial. All the ingenuity of the English mechanics seems to have been employed in scheming and failing; much money, and some lives, have been lost in these experiments.

The Dry Rot has been ascribed to the use of green timber, or wood not sufficiently seasoned or docked: but, though docking timber is, to a considerable extent, important, yet it is found that this remedy is by no means sure, as ships with which this precaution, as formerly, has been tried, have been found at times subject to the dry rot; so that in spite of every care, large vessels in Europe do not last half as long as formerly.

In the United States this disease is by no means as common, although it gradually becomes more so. Our merchant ships are at times troubled with it. Our ships of war being built of live oak, cedar and locust, are less exposed to this evil. The live oak appears to be almost indistructible, except perhaps by its contact with other species of wood, the juices of which, as in treenails,* may injure it.—But the time is not far distant, when we must bewail this calamity, or discover some preventive.

The same evil attends the construction of modern built houses. The timbers of the roof of Westminster-Hall have been in place six hundred years, and I have examined in this

* Trunnels: so pronounced by the ship carpenters.—*Editor.*

country some which were placed one hundred and fifty years ago, and are seemingly uncorrupted and incorruptible. But no architect now would calculate on a durability of half the latter term. I have been informed that some of the floors in the new City-Hall, in New-York, though finished within only six years, have been removed on account of the dry rot.

Considering these and other facts before the public, I have been led to believe, that the dry rot is owing to the nature of the wood, rather than to the deficiency of ordinary preparation.

The wood of a tree consists of the heart and the alburnum, or sap wood which forms the external concentric layers. This last is the vehicle of the sap. In young trees, it extends to the centre, but as the tree grows, the heart becomes firm, and ceases to circulate the sap, and this process continues during the life of the tree. In aged trees the sap wood forms only a small part of the timber, till at length a process similar to ossification in the old age of animals takes place, and the tree dies for want of nourishment.

The durability of heart, and the pernicious effects of sap wood, are well known; but as timber bears a high price, workmen content themselves with taking off the coloured sap wood, without regarding the remaining part in the timber. An oak tree, at the age of eighty years, is generally of a size fitted for timber for large vessels. But if we compare this tree to one of the same size, but two hundred years old, we shall find the real proportion of sap wood and heart very different in the two specimens. Now if we consider the enormous consumption of wood during the last century, in large and small vessels, in houses, and in all the objects which add to the comforts of society, both in Europe and America, we may justly suppose that few old oaks can be supplied in Europe, and that the number in America is continually diminishing.

We are therefore justified in believing, that the dry rot in vessels and houses, in its present extension, is owing to the use of young timber, to which architects have had recourse, in consequence of the destruction of the old forests. It is perhaps impossible to prevent the danger, but it may be in our power to guard in a great measure against it.—And it is of so much importance, that I feel less reluctance in offering my opinion on the subject.

The object of every process for the preservation of timber, must be to extract the water of the sap, and to destroy the absorbent power of the wood and chiefly of the sap vessels. The different uses for which the timber is intended, will of course cause some difference in the mode of its treatment. For this purpose, I suggest with diffidence the following processes, some one of which may probably be used in every situation:—

The first method is suggested by a very common usage of charring posts which are to be placed in the ground.—This method is of very ancient date, it having been used both by the Grecians and the Romans; and the piles so used either for bridges or foundations of temples, are now frequently found in a state of complete preservation, after a lapse of two thousand

years. But the use of this method must necessarily be very limited.

Another method may perhaps be tried with success, and without greater expense than many that have been resorted to without avail: I mean the use of smoke. This would evaporate the water of the sap, and carbonise in some measure the wood.

A third method is the application of lime, either in solution or as air slacked. The first would act like the muriate of soda in sea water, in the docking of timber, but from chemical affinity, much more powerfully. It might be applied to timber in most situations. I understand that when the steam frigate was built in New-York, a quantity of potash was poured into the centre of each timber. (Between contiguous timbers? *Ed.*) But it is the surface, and not the heart of the wood which first decays. This alkali, like lime, could not fail of being useful when properly applied. Air slacked lime, filled in between the timbers, would keep a continual action on the neighbouring wood, until the sap was extracted, and the wood in all its parts completely penetrated by lime. This, with the occasional use of a solution of lime, would render the wood incorruptible, as well as incombustible, and the woody fibre, like the animal fibre in leather, being saturated, would increase in strength and durability.

G. GIBBS.

Sunswick, August, 1819.

P. S.—Since the above was written, I have received from Col. Perkins, of Boston, some valuable information on the subject, which I will briefly state:—Several ships built at that port have been salted, or filled in between the timbers with salt whilst on the stocks, and after a lapse of ten or fifteen years the timbers have, in every case, been found to be perfectly sound. A large ship belonging to him, which had been salted, (fourteen years old) required repairs, new decks, and new iron work. Considering the age of the ship, it was important to examine the frame in every part. The ceiling was therefore ripped up, and a complete examination took place. The result was, that the timber and plank were found completely sound in every part.

I accompanied this gentleman on board of a salted ship belonging to him, and now in this port. The timbers were not so close as usual in frames of vessels, and the salt was retained at different heights by wedges between the timbers, so that the salt in settling should not leave any considerable height vacant. It took five hundred bushels of salt for this ship, of five hundred tons; and two years after being built, one hundred bushels were added to fill up the space of the salt dissolved.

Another instance has been communicated to me by an intelligent officer of the Navy. The Argus U. S. brig was built at Boston in 1802, of green timber, was salted as above, repaired at the Navy-yard in New-York in 1814, and the timbers found to be perfectly sound.

I see no objection to this treatment, except from the great weight above, say 23 tons in a ship of 300. The expense is not material, but the iron work I should think would require renewing oftener than in the other modes.—

Whether a dampness would be created injurious to the health of the crew of a large ship of war, to its provisions and ammunition, or to the freight of valuable goods, requires further experience.

G. GIBBS.

From the New London Gazette.

To preserve Beef tender and sweet, through the year.

For one hundred weight of Beef, prepare the following:

- Four quarts of coarse salt, made fine;
- Four pounds of brown sugar;
- Four ounces of salt petre.

Mix these articles well together; then rub your meat with it, and pack closely in the barrel. Sufficient pickle will soon be made in the cask, by this process. By no means use any water, as it will spoil the meat, when the weather becomes warm.

If at any time, a scum rise on the barrel, skim it off, and sprinkle into it a little fine salt, which will preserve the pickle. Some persons, fearing their beef will be injured in warm weather, take out the pickle and boil it. This is wrong; as it will harden the beef and entirely change its flavor.

Hamborough Pickle.

The following constitute the famed Hamborough pickle, which has been found to preserve meat effectually, in hot as well as in cold climates:

- Six pounds of Salt;
- Eight ounces of brown sugar;
- Six ounces of salt petre.

Dissolve these articles by boiling in four gallons of water. In this pickle, when perfectly cold, keep any kind of meat sunk, and stopped closely.

This pickle will also keep beef from being hard and too salt, when boiled.

Another recipe for Pickle.

Three gallons of water; half a pound of salt petre; one pound of brown sugar; one quart of molasses; add as much fine salt as will make an egg float lightly, taking care that first all the salt be dissolved. Skim it well, and it will be fit for use. Observe it is not to be boiled, as boiling the pickle will harden the meat.

Tongues, Veal, or Mutton, for smoking, should not remain in the pickle longer than ten days. Beef or tongues when taken out of the pickle for boiling, should be kept twenty-four hours in cold water, then drained, before they are boiled.

This pickle will remain perfectly sweet till spring, when, after all your meat is taken out, it will be found the best pickle in which you can cure shad, giving them a delicious flavour and fine red colour.

Having offered to my brother farmers, all I thought important, this season, respecting the making and improving of Cider; I have here called their attention to another subject.

This is the season for putting up Beef both for exportation and family use. Farmers generally are not acquainted with the best methods

of putting up Beef, so as to preserve it tender and sweet without being too salt; they are requested to make trial of these directions. The first is particularly recommended, for preserving meat tender and sweet through the year. I hope my communications will be well accepted as they are well intended by the farmer's friend.

J. B.

As Paddy would say—when codfish is boiled, it ought not to be boiled at all.—It is however a little surprising that many a good house wife is not apprised, that the dumb, or dried codfish ought not to be boiled to have them tender: it operates as on an egg, and oyster and clam: the more you boil them the harder they grow—let them simmer on or near the fire, in a kettle, 2 or 3 hours, according as the fish are hard; and then change the water, and before dishing, put this up to near a boiling heat, but no higher. This management don't draw out, but revives the glutinous, and enlivens the nutritious substance in them, and leaves the fish tender and delicious.

New-York paper.

An effectual cure for a Felon.

Bathe the part affected in ashes and water; take the yolk of an egg, six drops of spirits of turpentine, a few best leaves cut fine, a small quantity of hard soap, one tea spoonful of snuff or fine tobacco: then add one table spoonful of burnt salt, and one of Indian meal, and it never fails to effect a cure if applied in season.

The Piles

A cure for this most painful disorder has always been considered by those afflicted with it, of the first importance.

The writer of this has for the last five years suffered under this inveterate disease, during which time he could obtain no relief, until he accidentally met with a person who gave him a recipe which has effected in him a complete cure; and he now, from motives of humanity, makes it known to the public, viz: Take a lump of strong British alum about two inches in length, which smooth down with a knife to the thickness of three quarters of an inch—apply this morning and evening, first wetting it in cold water. In five to seven days the cure will be complete.

N. York paper.

[Communicated for the American Farmer.]

INTERESTING TO FARMERS.

It is now sufficiently certain that the Horse-botts, or grubs, by which so many horses are annually destroyed, are produced from eggs or nits, which are deposited chiefly in the inside moist surface of the tongue, and is from thence conveyed, with the food, into the stomach.

Any person who chuses, may reduce it to experiment for himself. In the season for it, let a few hairs be clipped off, having these nits adhering to them—moisten the inside of the hand by the application of a little spirit, and close it upon the nits, and he will find them hatched in a few seconds.

It is therefore recommended, to be careful to remove these eggs by scraping them off with

a knife, or washing them off with an infusion of tobacco every third day, throughout the season in which they are deposited.

If this be done, there is no doubt but the destruction, which is made by this hateful insect, may be completely prevented.

of the knee and back part of the shoulder of the horse, by a certain species of fly. The fly is called *Oestrus equi*. These eggs or nits, become ripe in the course of four or five days. When thus ripened, the slightest application of warmth and moisture is sufficient to bring forth, in an instant the latent larva, that is the insect in the first form. At this time, if the tongue of the horse touch the eggs, its little door (operculum) is thrown open, and a small active worm is produced, which readily adheres to the sootmach.

PEACH TREES.

Make boxes around your trees about one foot in height, and in capacity, exclusive of the tree, to hold a peck, fill this in with the bark taken from tan vats, pressing it a little together, and your trees will remain free from worms around the roots, which are so destructive to trees, as it is found that worms will not inhabit this bark if ever so old.

TIMBER.

It has been long known in some parts of Europe, that taking off the bark as far up the tree as it conveniently can be done, and letting them stand until the following autumn, or winter, before they are cut down, is a means of making the timber much stronger and more durable than it otherwise would be. It is more suitable for all kinds of carriages and instruments of husbandry, as well as for fences. Its greater durability has not yet been ascertained by the writer, but that it is otherwise improved, has been tested.

It has been asserted by persons of credit, that in some parts of the United States, where Pine Timber abounds, the farmers are in the practice of barking the Pine as far up as is necessary for a fence post—in this state they are suffered to stand until dead. The trees are then cut down, and the part which has been barked, will be found saturated with turpentine, and thereby rendered remarkably durable for posts or fences.

POETRY.

The Husbandman's Prayer.

BY H. S. ELLENWOOD.

O THOU! whose wisdom, power and love,
This world and all its creatures prove;
The fertile field and fruitful trees,
Thrive, or decay, as thou shalt please;
And human art and toil are vain,
If thou withhold thy sun and rain!
Still may thy bounteous Providence,
All wish'd—all needful—good dispense.

When brumal storms have spent their power,
And Spring expandeth many a flower,
May ne'er the frosts that fall at night,
The seeds of future harvest blight;
May ne'er the blushing blossoms yield
To storms that devastate the field;
From such, and from too-piercing air,
The new-born lamb—and nestling—spare!

In SUMMER, when thy solar ray
Is felt through all thy enfeebled day,
Mild be his genial beams—without
Contagion's force, or parching drought;
And frequent may the full-fledged cloud
The azure arch of Heaven enshroud,
That gentle moisture, temperate heat,
A plenteous harvest may complete.

When AUTUMN's treasures spread around,
And garner teem, and fruits abound,
Then shall the HUSBANDMAN upraise
To thee his grateful Hymn of Praise;
To thee, who gavest, not in vain,
The early and the latter rain;
To thee, whose promise doth avail—
"Seed time and Harvest ne'er shall fail."

GOD OF THE SEASONS! let thy care
Preside o'er each revolving year;
May Health, fair queen of blessings! crown
Each city—and each rural town—
While sweet content, and heart-felt joy
This land of Freedom shall employ?
THINE may thy offspring, man, adore,
Till Time—and Seasons—change no more!

THE FARMER.

BALTIMORE, FRIDAY, DECEMBER 21, 1821.

IN volume 2, page 158 of this work, we published a piece from an unknown pen, signed WELLS—The seed of the "very forward kmd" of locust then spoken of, were received and all distributed. Should this meet the eye of the writer of that communication, may it serve as a request that he will supply the Editor with a few more for his own use? and any hint as to the several kinds of locusts, and the proper time of planting and manner of cultivating, will be thankfully received.

PRICES CURRENT.

White Wheat, \$1 30 a 1 35—Red, do. 1 25 a 1 30—Old Corn, 56 a 60—New, do. 50 a 51—Rye, 65—Oats, 30 a 33—Barley, 65—Flour, last sales, at 60 days, \$6—Flour from the wagons, \$6 25—Pork, hog round, \$6—Eastern-shore Beans, \$1 25—New England, do. \$1 50—Potatoes, 40 cents—Onions, 62 1/2—Brin, 15 a 17 cents—Shorts, 20 a 23 cents—Flax seed, per bushel, \$1 a 1 08—Hog's Lard, fresh, per lb. 10 a 12 cents—Butter, 25 a 31 cents—Cheese, 8 to 10 cents—Eggs, per dozen, 25 a 31 cents—Wood, Hickory, per cord, \$6 a 6 25—Oak, do, \$4 25 a 4 50—Pine, do. \$3 75 a 3 25.

Maryland Tobacco—1 bhd. good yellow, \$16—3 bhd. fine red, wagon and fired, \$14—good, red, \$8 a \$8—common, do. \$3 a 5. no demand
Virginia & Kentucky Tobacco—No Sales.

The Cultivator.



This cultivator costs only seven dollars fifty cents, and is so much approved, as to be generally used in Chester, Montgomery, and some other counties in Pennsylvania, for the purpose of cultivating corn, &c. It completely pulverizes about 22 acres at once; consequently will finish a row of corn at twice, and a row of tobacco at once. One horse is sufficient to work it. I think it a valuable implement, and intend keeping a constant supply, ready made, at my plough and seed store; and have on hand, as usual, the Bar Share, Wood and Freeborn's Patent; the

Dagen or Carey Ploughs, all assorted. Also, Burdett's, or Small Scotch Ploughs, Cultivators, Harrows, Drill Machines, &c.

Persons transmitting the cash for any of the following articles, will be carefully put up and shipped to any part of the United States: Clover, Timothy and other grasses and garden seeds, warranted of good quality.

ROBERT SINCLAIR,
Ellicott's Street, Pratt Street Wharf,
Baltimore.

FOR SALE,

My fine Teeswater Bull, BERGAMI.

As I have a succession of fine Bulls coming on, I should be willing to dispose of the above animal, if he can be located to my satisfaction. He was two years old the 25th of May last; cost me \$300; and two of the most judicious farmers in this state have paid me \$100 per month for his services. It occurs to me that two or more neighbours would do well to unite in the purchase—and in his progeny establish the basis of an highly improved stock. For his points and qualities see proceedings of the Maryland Agricultural Society in the American Farmer of 22d of June last—and for price enquire of the Editor.

The Premium Horse Arrow,

FOR SALE.

Fountain Rock, Frederick County,
Oct. 12th, 1821.

The importance of superior first rate saddle horses, which has commanded the attention of Agriculturists (the mule and the ox to the contrary, notwithstanding), and has scarcely escaped the notice of any gentleman in the habit of riding or using horses—has likewise claimed a share of my attention, which has been rewarded agreeable to my most sanguine expectation. To arrive at perfection, it is indispensable that attention be paid to the selection of animals designed to breed from, as to blood, form, size, figure, colour and natural gifts; either of which, neglected, will, in all probability, defeat the expectations of breeders of horses. The expense incident to raising first rate horses, is not greater than that of the most inferior stock, when the profit is four fold. Any gentleman desirous of possessing a stud horse, combining, naturally, all those desirable properties, will not be disappointed on examining my young Stud Horse *Arrow*, that won the prize offered for the best Stallion to improve our breed of saddle horses, and for farming purposes generally, at the Maryland Agricultural Fair, in June last. *Arrow* is a descendant of the Tom and Budger, both a distinguished race of horses, will be six years old next May; is now nearly sixteen hands high; his colour a deep red bay, marked with a star in the forehead, and the hind feet white to the fetlocks; the other legs, main and tail black. His gait is which are natural and general, for speed and ease to the rider, are perhaps excelled by no horse. He has been critically examined by first rate judges, who have pronounced him the most perfect horse they have ever seen. His coils, of which I have a number, are equal to any, and superior to the most I have ever seen, combining size, beauty of form, and variety of natural gifts. *Arrow* is now making a fall season, which will end on the 25th of November next; after which date, I wish to dispose of him. He may be seen at my residence, five miles north of Frederick Town.

NIMROD OWINGS.

Printed every Friday at \$4 per annum, for JOHN S. SKINNER, Editor, by Joseph Robinson, at the N. E. corner of Market and Belvidere-streets, Baltimore, where every description of Book and Job Printing is executed—Orders from a distance for Binding, with proper directions, promptly attended to.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua: bona norint
"Agricolae."
Vino.

VOL. III.

BALTIMORE, FRIDAY, DECEMBER 28, 1821.

NUM. 40.

AGRICULTURE.

The following ESSAY, on SOILS, and the means of rendering them *permanently fertile*, was written by a practical farmer, in the state of Virginia, who some years since determined to examine into the nature or composition of the Soils in his vicinity; and who, at the same time, commenced a course of experiments to ascertain the permanent as well as the immediate effects of several manures. He has now given an account of the modes and results of his examinations of many soils—accompanied by detailed statements of the effects of specified manures upon several crops, cultivated upon soils of known properties.

This Essay presents the first systematic attempt that has fallen under our observation, wherein a plain, practical, unpretending farmer, has undertaken to examine into the real composition of the soils which he possesses, and has to cultivate. And we think it would be impossible too highly to commend the disposition which he has shewn to ascertain the real character of his land, and the true value and effect of different manures; for it is only thus, that we can be taught understandingly to apply manures for the immediate increase of our crops, and permanent benefit of our soils.

And we rejoice with him, and for our country, at the circumstances of his investigation having been crowned with a rich reward—the approbation of his neighbours, and of the Delegation of the United Agricultural Societies of the state of Virginia; added to the satisfaction which he should derive from the consciousness of having assiduously and usefully devoted a portion of his time to the advancement of the great interest, the *permanent profitableness* of a pursuit, on which the prosperity of the nation mainly depends.

His ESSAY deserves to be studied by every Farmer, and his example should be followed by every intelligent cultivator of the soil; all of whom may possess the means, for they are but simple and but of little cost: and many there are, in every district of this wide spread country, who could and ought to make similar examinations and experiments for themselves and their neighbours.

It is not enough to excuse these persons from such undertakings, that they have not made chemistry their study: it is their business, and therefore their duty to understand many things critically, which properly form a part of that science. The composition of soils, as regards their particular fitness or adaptation to the growth of one or another plant; with their susceptibility of immediate, and fleeting or lasting improvement, by the application of the different manures, that are accumulated by our own industry and management, or which may be found

ready formed by nature in almost every vicinity: are subjects easy to be understood by all, who will take the trouble to inquire strictly into them. The little knowledge of chemistry that is necessary to the comprehending of such matters, as far as they are practically connected with farming operations, will be readily acquired by every one as he advances in his investigations. And that every reader, who will do us the favor to peruse this Essay, may follow the author in his argument without the interruption that might occur for want of chemical works, or a knowledge of the terms used in that science, we shall for ready reference append explanations for the use of such persons, and refer them to substances and their modifications as they are commonly seen and spoken of. We shall do this in the hope that we may induce each reader of the American Farmer, to bring his mind to the perfect understanding of the author's opinions, so as to form a correct estimate of the great importance of pursuing such investigations and experiments in every section of this country. Let no one consider these matters as out of his sphere, or beyond his power to comprehend, for it is only necessary to be willing in order to be able to understand them fully. On this point we would be urgent; and we hope to be successful, when we entreat our readers, one and all, to think and act in reference to the subject of this essay as we believe their true, immediate and lasting interests require that they should. We beseech them not only to read but study it; and resolve to follow the bright example which its unassuming author has so clearly and laudably set before us. And may we not hope, that his appeal to the votaries of science, will be felt by the professors of chemistry in our Universities, and his wishes be sooner realized, thro' their willing co-operation than he seems to hope?

Such are our favorable impressions as to the merits of this essay, that we have determined to extend its circulation by issuing, and gratuitously distributing an extra impression of this number of our Journal.

Editor Am. Farmer.

ON THE COMPOSITION OF SOILS, AND THEIR IMPROVEMENT BY CALcareous MANURES.

Received from the Agricultural Society of Prince George, by the Delegation of the United Agricultural Societies of Va. Dec. 6, 1821—Read and ordered to be printed in the AMERICAN FARMER.

Three years ago, I ventured to lay before this Society, opinions respecting the nature of soils, and the action of calcareous manures, which had then received no support from my own experience, and but little from that of others. I was fully aware of the risk, in presenting a theory so general and comprehensive in its application, and on that account, so easy to overthrow, if untrue: but I was induced to take that course, from my conviction of its correctness, and the hope of gaining the assistance of oth-

ers, towards furnishing the proofs, which numerous and varied experiments with calcareous manures, could only afford. It was my intention to resume the subject, whenever I should be able to offer practice, as well as theory, and either to sustain the opinions before advanced, or to acknowledge whatever experience might show to be erroneous.

The propositions formerly submitted, were as follows:

That soils are essentially different in their capacity for improvement, from some general cause which is far more operative, than such particular and auxiliary causes, as being stiff or light, moist or dry, level or hilly.

That soils under similar circumstances, are capable of improvement, by animal and vegetable manures, in proportion to the degree of their natural fertility.

That the fertility or barrenness of soils, is caused by the presence or absence of a proper proportion of carbonate of lime, or calcareous earth; and of course that the quantity which soils contain of this ingredient, measures their capacity for improvement.

That the fertilizing effects of calcareous earth, are principally produced by its power of combining manures with soils, between which there would otherwise be no attraction, and of neutralizing acids, which exist in all soils destitute of calcareous matter.

That for the want of these properties, it is impossible to improve poor soils with profit, by means of animal and vegetable manures, without previously correcting the defect in their constitution.

The different capacities of Soils for improvement.

Of the foregoing propositions, none perhaps will so readily obtain the assent of experienced cultivators, as those which affirm soils of similar texture to possess very unequal capacities for improvement, and that the degree is in proportion to their original productiveness. These facts, however, so important to every rational scheme of improvement, appear to have excited but slight, if indeed any attention, either in Europe or America. To make and apply as much manure as possible, seems to be considered by all writers, as sufficient to insure fertility to the soil, and profit to the cultivator. They do not tell us, that many exceptions to this rule may be found, and that some soils, without any apparent defect, if not incapable of being enriched by animal and vegetable manures, would at least cause more loss than profit by their improvement.

Some persons admit this difference in soils, but consider a deficiency of clay to be the obstacle to permanent improvement. The general excess of sand in our poor lands, would warrant this belief to a superficial observer. But clays, in proportion to their extent, are as frequently found poor, as sands, and the most sterile bodes of land in this country, are also the stiffest. A poor clay soil will certainly retain manure longer, and may be rendered more productive than a poor sandy soil, but when the difference of expense in manure and cultivation, is considered, I doubt whether the improvement of the lighter soil would not be attended with more profit, or rather with less actual loss.

If all soils of similar texture, were equally capable of being enriched, we should not see extensive districts altogether rich, or altogether poor, and which have maintained their respective characters, from the time they were brought under cultivation. It cannot be supposed that every farmer in one district is

an improver, and in the other, every one an exhaust-er. If soils were equally fit to be improved, we should see their value vary as much, as the industry and intelligence of their owners. Animal and vegetable manures, applied to any amount whatsoever to the clays of Prince George, or the sands of Sussex, would not make them as valuable as the stiff lands of Back river, or the high loam of Nansemond: and even if such means caused the greatest productiveness, not as much would be retained after five years of exhaustion, as the others now shew after a century.

Calcareous earth the cause of fertility.

Soils containing a proper proportion of calcareous earth, are invariably rich in their natural state, and those which are stony, either contain an excessive quantity, or are totally destitute of this necessary ingredient.

This opinion was formed entirely on the visible qualities of soils, and the effects of calcareous manures. But it is obvious that the only certain test of its truth, is an accurate and extensive examination of soils of different characters, by chemical analysis, and thus ascertaining the exact proportion of carbonate, or other compounds of lime, contained in each. This did not appear very difficult to perform, according to Professor Davy's directions, even though the operator might possess but slight knowledge of chemistry in general. Under this impression, I did not fail to attempt obtaining proof in this way, though unacquainted with either the theory or practice of chemistry, and without any opportunity of receiving instruction, from communication with others who were better informed. Thus situated, perhaps it would have been better (and certainly more prudent) to leave such investigations to those who are fully competent. I should have chosen that course, had there been any hope of similar operations from chemists; but their almost total neglect of the chemistry of agriculture, leaves no ground to expect a change, until farmers themselves point out the abundant harvest of discovery, which will hereafter reward some successful investigator.

When the proportion of carbonate of lime in a soil is considerable and perfect accuracy is not essential, its amount may be easily ascertained, by the first process described in Davy's "Agricultural Chemistry." But it is not sufficiently exact to determine the character of a soil, when an error of one grain in 100, would class it incorrectly. The inaccuracies attending this mode, arise from the muriatic acid, which is used to dissolve the lime, taking up also a small portion of clay and vegetable matter: all these will be precipitated together, by the carbonate of potash, and cannot be separated without a subsequent process, which (from the small quantities usually obtained) would be both difficult and uncertain. If compounds of lime & vegetable acids are present, (which for reasons hereafter to be stated, I believe to be common ingredients of soils,) they would appear in the result as carbonate of lime, although the soil might not have contained a particle of the latter substance.

The analysis by means of the Pneumatic Apparatus, (of which a plate and description are given in Davy's "Agricultural Chemistry,") is liable to none of these errors; and when the few which are peculiar to this mode are guarded against, its accuracy is almost perfect in ascertaining the proportion of the single substance, to which its use is limited. It should be remembered, that it indicates the presence of lime in no other form, but when combined with carbonic acid. By means of this apparatus, my examinations have been made, with much care, and I think with as much accuracy, as can in any case be expected.

It is very probable, that from ignorance of some particular properties of the substances used, I may have been betrayed into gross errors, without suspecting it. Should this be the case, I would gladly be corrected; and for that purpose, I shall explain the process by which I examined soils, more fully, than its importance merits. Most farmers are determined not to understand any thing, however simple it may be, which relates to chemistry: I hope this reso-

lution will for once be suspended, on my assurance that I will speak of no process, which may not be well understood, or even repeated, by persons who possess no knowledge of that science.

The Pneumatic Apparatus ascertains the proportion of carbonate of lime in a soil, by measuring the carbonic acid gas evolved, on the application of a stronger acid. Nothing, therefore, can be mistaken for that earth, unless it is also combined with carbonic acid. Magnesia is the only other substance in soils thus combined, and when present, appears in the result as lime. Its amount however, is so inconsiderable, as scarcely ever to affect the true result. There is another slight source of error; a small quantity of carbonate of lime, varying between half a grain & three grains, will always be lost to the result, either by the condensation or absorption of a part of the gas, or from the acid not reaching every particle of soil. This was ascertained, by frequently submitting to examination, known quantities of pure chalk, either alone, or mixed with other earth. Whether much or little was tried, the loss was always as above stated, except that when chalk was used alone, the loss never amounted to one grain. To diminish as much as possible even this small error in the results, large quantities of soil were used, and to each, a small known quantity of pure chalk was previously added, and as much deducted from the result. This served not only to shew a proportion too small to be otherwise indicated, but also, when no other carbonate of lime was present, it proved in every experiment whether the apparatus was in good order, and the result perfectly correct. Muriatic acid was applied to the soil, to considerable excess, and the mixture agitated, as long as any gas was produced.

The soils were frequently subjected to two other processes, for the purpose of comparing results. After the action in the pneumatic apparatus was over, the carbonate of lime was separated, in the mode prescribed by Davy, and the weight ascertained. Its impurity was then proved, by throwing it into diluted sulphuric acid. By uniting with this acid, the magnesia (if any), forms Epsom salts, the clay forms alum, and the lime becomes gypsum. The last alone being insoluble, may be separated in a solid form, from the other salts, and the vegetable extract. Sulphuric acid is far from an accurate test for carbonate of lime; but it is enough so, to confirm the first process, and to shew that no reliance can be placed on the second, which is generally resorted to for this purpose.

The following examinations are of soils which are well known, and present every different character which this district furnishes. The specimens were all taken from places, which are supposed never to have been manured, and when any are described as retentive of manure, or otherwise, the inference is drawn from its effects on adjoining and similar soils.

1. Rich black loam, from the top of the bluff at Coggin's Point, containing muscle shells throughout. Long under exhausting cultivation. 1000 grains, cleared of all the coarse shelly matter (as it can have no effect on the soil, until finely divided,) gave 16 ounce measures of carbonic acid gas, equal to 32 grains of carbonate of lime.

2. 1000 grains of similar soil, from another part of the same field, gave,

By measurement of gas, 24 grs. of carbonate of lime.

By precipitation (according to Davy's Ag. Chem.) 31

By sulphuric acid, 29

For the amount of carbonate of lime obtained by the last process, I take two thirds of the quantity of sulphate of lime formed.

3. Soil of an island containing about 5 acres of level dry land, lying at the end of Coggin's Point, and surrounded by the river, and tide marsh. The east end, dark brown shelly loam, capable of producing 35 bushels of corn per acre. The shells and value of the land decrease together, as the west end is approached, where shells are seen but in a few small spots, and the product about 12 or 14 bushels.

Sorrel thinly scattered over the poorest part. Long under exhausting cultivation.

1000 grains of soil from the east end, gave—
Of coarse shelly matter (separated by hand,) 8 grs.
Of finely divided carbonate of lime, 82

1000 grains from the west end, taken from one of the spots shewing shells, gave—
Of coarse shelly matter, about, 1 grain.

finely divided carbonate of lime, by measurement of gas, 13
by precipitation, 5
Difference, 34

4. Soil from Eppes's Island—dark coloured, rich clay loam—the arable land very much reduced by a long course of the three shift system, but is still considered of the first quality.

To 1000 grains of soil, I added 3 grains of pure chalk, they gave 12 oz. measures of gas—equal to 2½ grs.
Of carbonate of lime, 17
do. by precipitation, 17
do. by sulphuric acid, 4
known quantity, 3

The true result by the measurement of gas, deducted from the known quantity added, shews a loss of half a grain, and that the soil contained no carbonate of lime.

5. Soil from Edward H. Nehl-tt's land—part of an extensive body of similar quality lying between Powell's creek and Ward's creek: very poor, stiff, light coloured clay. Contained no carbonate of lime.

6. Soil from another large tract of poor land in this county, lying between Otter-lam swamp, and the head waters of Ward's creek. Close and stiff, from the fineness of the sand, of which the soil is mostly formed; remarkable for producing large and excellent pine timber. Contains no carbonate of lime.

7. Soil from Richard Cockey's land, Surry, between Black water and Otter-lam swamp—close, poor, and sandy. 1000 grains gave—

Carbonate of lime, by measurement of gas, none.
by precipitation, 7 grs.
by sulphuric acid, about 4

8. Soil from Eldridge Blunt's land, Sussex, a mile south of Black water; light and poor 1000 grains gave—

Carbonate of lime, by measurement of gas, none.
by precipitation, 6 grs.
by sulphuric acid, none.

9. The three following specimens were taken from land cleared within a few years, and not more than 100 yards apart. They shew the characters of the remarkable strip of land, lying between the high hills and James' river, and extending nearly from Bailey's creek to Powell's creek. Soil generally light, rich and durable, but interspersed throughout with barren knolls of shelly sand, pure sand, (apparently,) and sometimes stiff clay.

1000 grains of the best soil gave, 1½ grains of carbonate of lime.

400 grains of poor sandy soil in which some particles of shelly matter were visible—gave 87 grains of carbonate of lime—near 23 per cent. I have used sand less calcareous than this, as manure, with good effect.

To 1500 grains of poor clay soil, near the two last, I added 29 grains of pure chalk, and obtained of carbonate of lime, 28 grains
Known quantity, 29

1 g. loss; soil contain'd none.

10. 1000 grains of poor stiff soil from Green Spring, James City county, gave no carbonate of lime.

11. Soil of the best quality, from the neighbourhood of Huntsville, Alabama; brown, or chocolate colour, and uncommonly friable and light, though containing very little sand.

To 1080 grains of soil, I added 6 of pure chalk, &

obtained by measurement of gas, 8½ grs. carb. lime.
Add the usual average loss, 2
10½
Deduct the known quantity previously added, 6

Quantity present, 44 grains.
The solution precipitated gave of carb. of lime, (or solid matter,) 73 grains.

I was prepared to expect in our soils, a very small quantity of calcareous earth, compared to those of Europe, of which analyses have been published; the deficiency, however, proved to be still more general, than was expected. Among all the soils, analysed as described by Kirwan, Davy and Rozier, I believe not one is stated to be entirely destitute of carbonate of lime, and the average proportion contained, is very seldom equalled by any in this country. Here, not an atom is present in more than nine-tenths of our soils. This remarkable difference in constitution, proves (even to those who may attach no value to my views of the subject,) that the same modes of improvement cannot be applicable to both—and that if calcareous manures are serviceable in England and France, they must be far more beneficial in Virginia.

Many other examinations of various descriptions, concur with those stated above, in the following important results: 1st, that all soils containing any quantity of carbonate of lime, not exceeding 10 per cent., are durably fertile—and, 2ndly, that every soil naturally poor, is entirely destitute of carbonate of lime, excepting the very few cases, in which the proportion is so excessive as to cause sterility. So far, facts completely support the theory of the constitution of fertile soils, and exhibit the general cause, and the complete, if not the only remedy for sterility. But there is an apparent and striking contradiction, in the many rich soils which are as destitute of carbonate of lime, as the poorest. This difficulty will be explained, when that particular class comes under consideration. It is first necessary to arrange soils according to their composition, and to treat of each class, under its proper head: all may be properly distributed among the four classes, which I shall call, *calcareous, super-calcareous, acid, and neutral soils.*

Calcareous Soils.

To this class belong all soils which contain finely divided carbonate of lime, but not enough to injure their productiveness. They are dark coloured, friable, rich in their natural state, durable, and retentive of animal and vegetable manures. The growth of wild lucist is almost confined to soils of this class, and after cultivation, they always throw up white clover in abundance.

Super-calcareous Soils.

In these, the quantity of carbonate of lime is so great as to injure or destroy their powers of production. They can only be improved by applying siliceous sand or clay and vegetable manures, in quantities sufficient to reduce the proportion of calcareous earth, to the standard of fertility. This would be so expensive, that such soils may be considered as almost unimprovable.

What proportion of calcareous earth will cause sterility, must depend on the nature of the other ingredients of the soil, the inclination of the surface, and the quantity of water which it is accustomed to receive. The sand of the desert which has covered and destroyed so much of the fertile land of Egypt, is said to be almost entirely composed of carbonate of lime. Rain scarcely ever occurs in that country: but whenever water is conveyed to these naked sands, by irrigation, they immediately become highly productive.

Why a large proportion of carbonate of lime, should cause sterility, is not very evident, nor would the inquiry be of much importance. 'Tis enough that we know such to be its effect. Soils of this class are very rare in this country, but in many parts of the old world, they are so common, as to induce my belief, that the excess of calcareous earth is as much the

cause of sterility there, as its deficiency with us.—Most of the barren plains of England, are composed principally of chalk; and it appears from Rozier, that such soils are still more common in France—to which country, I presume, his remarks should be applied, though he makes no such limitation. He divides soils into three grades, according to their value and states their composition to be as follows:

1st quality,—10 parts composed of carbonate of lime
pure clay
siliceous sand
vegetable earth

2d quality,—carbonate of lime
clay
siliceous sand
vegetable earth

3d quality, carbonate of lime
clay
siliceous sand

And a very small proportion of vegetable earth.

This statement of Rozier's is doubtless well founded, as far as his observations extended, and according to his estimate, the least productive of the soils, he numerates, contain 50 per cent. of calcareous earth. It then not to be wondered at, that chemists should never have suspected fertility to be caused by the very substance, which was found most plenty in barren soils. The proportion which Rozier assigns to the best soils, (10 per cent.) agrees with the results of my examinations, though I have but seldom found as much.

Acid Soils.

The soils which belong to this class, contain an excess of vegetable acid, above the quantity necessary to combine with the small quantity of lime which may be present: of course they have no carbonate of lime. Such soils only produce in abundance, the acid plants, pine, whortleberry, sorrel, *Cranium acetosa* and broom grass. They are naturally poor, and incapable of receiving durable improvement, except from calcareous manures.

I have advanced no opinion which is less supported by authority, or to which stronger opposition may be expected, than the supposition of acidity being a common ingredient of soils. The term *acid soil*, is frequently used by farmers and writers on agriculture, but so loosely and with a meaning so indefinite as to deserve no consideration. Of those who really mean what the word conveys, there are but few who speak of acid in earth. Darwin and Dickson suppose sulphuric acid to be present in certain clays; both, most probably, on the authority of Morveau, who detected it by chemical analysis. Davy says that the same acid is found in peat, (a kind of vegetable soil not found here,) but with this single exception, does not name any kind of acid, nor any compound of vegetable acids, in his enumeration of all the substances, contained in soils. Dickson, also, slightly mentions "other acids" besides the sulphuric, but without stating their kind, or his reasons for believing in their existence: it is not necessary, however, to discuss opinions on this subject, when advanced by an author who is capable of recommending gypsum for the purpose of neutralizing acids.

* Cours Complet d'Agriculture, par P. Abbe Rozier.

* Pine, sorrel, and at least one species of whortleberry, are sour to the taste—this quality in broom grass, rests on conjecture. A remarkable exception to the rule above stated, is found in the acid plant, vulgarly called *hore sorrel*, (*Cerastium acetosella*) which prefers soils the most unlike in quality to this class, and I have seen it on a soil calcareous to excess. It is probable that this plant draws its acid entirely from the atmosphere, and the others from the earth.

Dundonald, alone, supposes vegetable acids to be abundantly formed in soils, and by uniting with the calcareous earth present, to form salts of lime. According to this author, these effects are produced in the following manner—Oxygen, which is one of the ingredients of atmospheric air, has a tendency to unite with all vegetable substances. When dead vegetables are exposed on the surface of the earth, they become oxygenated, or combined with a small proportion of oxygen, which makes them incapable of rotting, or of rendering any service to soil or vegetation. By uniting with more oxygen, the oxalic acid will be produced, which becomes oxalate of lime, by combining with the lime in the soil. It follows from this reasoning of Dundonald's, that this process must continue as long as there is vegetable matter, to be acted on, and after all the calcareous earth is taken up free acid will form, and remain in the soil, until neutralized by calcareous manures.

This theory of oxygenation, if it could be relied on as correct, would discover sources of vegetable acid operating at all times, and in all places. But it seems to prove too much, to be altogether true. Had such been the action of the atmosphere on the surface of the earth, every particle of vegetable matter must have become either insoluble or acid, and not a spot could have escaped being reduced to absolute sterility. Though this work was published more than twenty years ago, I have never seen in any of later date, the slightest notice of this theory: the oxalate of lime which it makes an ingredient so universal in soils, is not mentioned as such by Kirwan or Davy; and Dundonald himself does not state that he ever detected it by analysis. But for the tacit denial, by all later writers, of the presence of vegetable acid or its compounds in soil, my ~~theory would~~ be only to apply Dundonald's discovery to the peculiarities of our soils. As it is, I shall offer some additional reasons, which alone appear to me, sufficient to prove the existence of acid soils.

Grisenthwaite, the latest writer on agricultural chemistry, has the following passage, in his 'New Theory of Agriculture' "Chalk has been recommended, as a substance calculated to correct the sourness of land. It would surely have been a wise practice to have previously ascertained the certainty of this existence of acid, and to have determined its nature, in order that it might be effectually removed. The fact really is, that no soil was ever yet found to contain any notable quantity of acid. The acetic and carbonic are the only two that are likely to be generated by any spontaneous decomposition of animal or vegetable bodies, and neither of these have any fixity when exposed to the air"—This is probably correct, as a mere chemical fact. I certainly have never examined a soil containing enough uncombined acid, to be detected by the usual tests. But still the term *acid* will be applied with propriety to soils, in which growing vegetables continually receive it from the decomposition of others, (for which no fixity is necessary,) or in which acid *is* combined with some base, which readily yields it to growing plants, to be thus quickened or retarded, according to their kind. It will be sufficient for me, if I can show, that certain soils contain some substance, or possess some property, which promotes exclusively, the growth of acid plants—that this cause is increased, by adding known vegetable acids to the soil—and is totally removed, and can only be removed, by the application of alkaline manures, which destroy all acids. Leaving it to chemists to determine the nature and properties of this substance, I merely contend for its existence; and from whatsoever cause these effects may be produced, for the want of a more appropriate name, I shall call that cause, *acidity*.

All soils of this description, however unproductive when under cultivation, produce a luxuriant growth of pine and whortleberry before they are prepared for the plough, and sorrel and broom grass afterwards. These plants never thrive on calcareous soils. Pines are rarely, if ever seen on the rich lands of the Western States, while their number and size are remarkable on the barrens of the Carolinas.—I have had no opportunity of examining these soils—but fear not to

assert, that the first contain calcareous earth, and that the last are totally without.

One vegetable acid will feed plants producing other kinds; thus pine leaves, and oak wood produce sorrel, and I have heard that pomace (which certainly is a poison to valuable plants), has similar effects. Peat and fossil coal contain sulphure, and perhaps vegetable acid; and Dundonald says, that a growth of sorrel is the invariable consequence, when either of these substances has been applied as manure. Farm-yard manure, which gives out acetic acid when decomposing, will encourage the growth of sorrel more than any other plant, if the soil to which it is applied is not immediately cultivated, and is not calcareous. Cultivation immediately following manuring will, of course, prevent the growth of sorrel, but does not diminish its cause, which still inflicts its evil effects on the crop. It is well known that all decomposing vegetable matter gives out acid, and as it is greedily seized and stored up, by acid plants, the natural process is made evi-³ dent, by which this quality of soils, commences and continues.

An acid soil made artificially calcareous, by lime or shell marl, is thereby rendered incapable of producing sorrel or broom grass. On these facts I rest the proof of the existence of acid soils.

Much the greater part of the lands of lower Virginia, are rendered unproductive by acidity, and generation after generation have toiled on them without being remunerated, and without suspecting that their land throughout, was even then as rich, as their few improved lots appeared to be. The cultivator of such soil, who knows not its peculiar disease, has no other prospect, than a gradual decrease of his present scanty crops: but if the evil is understood, and the means of its removal within his reach, he has reason to rejoice that his soil was so constituted, as to be preserved from the effects of his own improvidence and that of his forefathers. The presence of acid, by restraining the productive power of the soil, has in a great measure, saved it from exhaustion; and after a course of cropping, which would have utterly ruined more productive lands, the powers of our soils remain scarcely impaired, and ready to be called into action at will, by the use of calcareous manures. If an English agriculturist was asked, what would be the effect of 50 years continued and severe cropping & close grazing, without manure, his answer would certainly be, that such a course could not fail to be followed by complete and hopeless sterility. Yet we know instances enough, where such has been the practice, on soils never productive, and which however damaged, still continue under cultivation. In other countries, the existence of soils which were incapable of being either improved or exhausted, to any considerable extent, would justly be considered a fact so remarkable, as to merit all the labour of investigation, which it might require. Here, its frequency causes it to be unnoticed; and they who seek improvement, continue to obey rules drawn from English agriculturists, on soils to which England furnishes no parallel.

Neutral Soils

Neutral soils are such as contain neither acid nor lime, or in which the quantities of both are so nearly equal, as to combine and leave no excess, of either, sufficient to produce perceptible effects. Soils of this class, are poor or rich, according as calcareous matter is entirely wanting, or is present though combined with acid, and the qualities of both thus neutralized.

All soils belonging to the three other classes, fully accord with the theory of their constitution and fertility: but the class of neutral soils appears at first view, in direct opposition to the principles which I have advanced, as they are frequently rich and durable in the highest degree, and yet found by analysis, to contain not the smallest proportion of carbonate of lime. This difficulty may be removed by paying that attention to the properties of the different substances in soils, which is requisite for the full comprehension of the subject.

This apparent contradiction may be produced by one of two different causes, either of which will serve for its explanation. First—if no compound of

lime exists in a fertile soil, its place must have been supplied by some other substance, of equal value. I have never asserted that carbonate of lime is the only cause of permanent fertility; on the contrary, phosphate and sulphate of lime were named as probable agents for producing the same effect, and many other substances may promote the same end, whose presence or combinations are as yet unknown, and which if known, might be beyond our control, for the purposes of improvement. Even if such was the case, it would not effect the truth of my reasoning: and for all practical uses, it is enough if I have pointed out one substance, which will change barrenness to fertility, and which may be cheaply applied to any extent required.

Secondly—Neutral soils, may (as stated in their definition) contain calcareous matter sufficient to have caused durable fertility, but exceeded in quantity and now neutralized in its effects, by vegetable acid. If it is not denied that soils receive acid from the decomposition of plants, it must also be admitted that as fast as it forms, the carbonate of lime present, will be decomposed, and a new compound formed. As this process must continue slowly to operate as long as the land remains uncultivated, the carbonate of lime, if not very abundant, will at last entirely disappear, and the soil lose every mark of having been calcareous, excepting its previously acquired fertility. The salt of lime thus formed, is probably as durable a manure, as the carbonate; but its character and action are different, nor can it be detected in soil, by the means most proper for the other. The quantity of acid in any particular soil, is far from invariable: it is increased by the growth of all plants which delight in its presence, and by the decomposition of vegetable manures of every description; for this reason the longer a field remains at rest, and uncultivated, the more acid it becomes; and this evil keeping pace with the benefit, is the cause of enclosing so frequently producing no apparent improvement. Cultivation lessens the quantity of acid, by exposing it to be carried off by air and water and by cutting off the source of its supply. In several instances, after one or other of these causes of acidity I have had crops greatly injured by sorrel, which afterwards disappeared, and left the soils as they were before, productive.

Third—neutral soils contain lime in some other form than the carbonate, does not rest on mere conjecture, some evidence is furnished by the mode prescribed by Davy for detecting carbonate of lime in soils; and the fact is fully proved by the analysis of ashes. Reasons have been offered to shew that the former process is completely inadequate for fixing the proportion of carbonate of lime; but this impure precipitate certainly contains a part of the compound of lime and vegetable acid; and this compound is generally, if not always, changed to carbonate of lime, by having been dissolved, and then precipitated. For example: of a rich and durable alluvial soil, which was carefully examined for the purpose of ascertaining this fact, furnished the following results:

1000 grains acted on by muriatic acid in the pneumatic apparatus, evolved no gas, and therefore, could have contained no carbonate of lime.	
The precipitate obtained from the same, well washed and dried, weighed	16 gr.
Then subjected to the action of sulphuric acid, in the pneumatic apparatus, it yielded 14 oz measures of carbonic acid gas, indicating the presence of 3 grains of carbonate of lime.	3
The solid matter remaining undissolved by the sulphuric acid (sulphate of lime) weighed 3 grains indicating the carbonate of lime to have been	2

This process leaves no doubt, but that the soil contained some neutral salt, of which lime forms the base, but does not ascertain the full quantity. Were proper means employed to fix the quantity of this salt, I believe that its proportion would mark the actual productiveness of soils, as accurately, as the carbonate of lime shews their capacities for improvement. The precipitate, called carbonate of lime by Davy, may be obtained from all soils—but much

more abundantly from rich neutral soils, than from any of the acid class. Among soils of the same class, but of different textures, that which contains most clay, will yield the heaviest precipitate; which induces the belief, that a part of its impurity is caused by alumina or pure clay.

All wood ashes contain carbonate of lime, though obtained from neutral or acid soils, as were the following specimens.

100 grains of ashes of a pine log heap, from an acid soil, contained 64 grains of carbonate of lime.	
100 grains of ashes of whortleberry roots from the same soil, gave of carbonate of lime,	4 grains:
Other salts of lime, or lime made caustic by burning,	4
Siliceous sand,	92
	100
100 grains of ashes of equal parts of the bark, heart and sap wood of an old locust, from the same soil, gave	
Carbonate of lime,	51 grains.
Lime not carbonated,	18
Siliceous sand,	8
Magnesia,	2
Charcoal,	2
Potash and loss,	22
	100

100 grains of ashes of young locusts from a very rich neutral soil, gave	
Carbonate of lime,	49 grains.
Lime not carbonated,	30
100 grains of ashes of young pines from an acid soil, gave	
Carbonate of lime and } Lime not carbonated, }	15 grains.
Siliceous Sand,	78
Potash and loss	7
	100

As vegetables can only derive their calcareous ingredients from the soils on which they grow, these experiments establish the fact, that some small portion of lime is present in soil of every kind, though not containing a particle in that form, which alone (according to chemists) we might expect to find it. Compounds of lime with vegetable acids, are decomposed by fire, and become carbonate of lime; and therefore, this substance is found in ashes, though not in the plants from which they were obtained, nor the soils on which they grew. It is probable that the whole difference between barren sub-soil and the mould above, is caused by trees drawing all the calcareous matter within their reach, and by their death, depositing it on the surface.

The results of the few examinations which I have made, do not confirm the opinion of Saussure, that ashes yield quantities of calcareous earth, somewhat proportioned to the quantities contained in the soils from which they were taken. But they shew in different plants, quantities suited to the soil, which each prefers. Thus, of three kinds of whortleberry 4, of locust 51 per cent, of carbonate of lime, and similar proportions of lime not combined with carbonic acid. If phosphate of lime formed any considerable ingredient of soils, it might perhaps present results similar to those which distinguish the neutral class. But though the phosphate is contained in all wood ashes, and therefore in all soils, its quantity (according to Davy) is so small, that it cannot possibly be the salt in question. My supposition, that the lime is combined with some vegetable acid, rests on the facts stated with regard to acid soils.*

* Since this essay was read before the Agricultural Society of Prince George, I received seven specimens of lime-stone soils, carefully selected in the neighbourhood of Lexington, Va. Never having doubted the correctness of the received opinion, that all limestone soils were highly calcareous, I was

The action of Calcareous Manures.

I shall next proceed to the inquiry, to what properties of carbonate of lime, its peculiar fertilizing effects are to be attributed; and it can be made clear, that it has abundant powers for the purpose, of which the other two earths, clay and sand, are nearly or entirely destitute, there will be added another strong proof in support of the supposed constitution of fertile soils.

Sand has no chemical attraction for vegetable and animal manures, and readily yields them as soon as they are applied, to whatever has such attraction. Hence, sandy soils give out manure freely, not only to the growing crop, but to the sun, air, and water, so as to fly quickly to lose the whole. Clay, by its closeness, mechanically excludes, what sand freely admits, and therefore gives out manure much more slowly than sand, whether for use, or for waste. This earth also exerts a slight chemical force in retaining manure, but too weak to enable such soils to become rich by natural means. Of this, our large tracts of very poor clay offer sufficient proof.

Calcareous earth has an attraction for oils superior to that of clay, and will combine with any vegetable extract, so as to render it less soluble, and consequently not subject to the waste, which would otherwise take place. This power of combining with the food of plants, and fixing it in soils, from which it would otherwise be continually escaping, shew why calcareous land alone, should be capable of enriching itself, or of receiving durable improvement from artificial manures. Calcareous manures, in enriching soils, act precisely like the mordants, used in the process of dyeing—like alum, which gives no colour to the cloth, but is as indispensable as the dye itself, for the purpose of fixing it permanently. The power which this earth exerts, in binding manure to soils, does not however, (like clay) prevent the crop receiving the full and immediate benefit. Growing vegetables attract their food, still more strongly than does calcareous earth, and draw it from its state of combination, as freely as from sand. The principal means then, by which calcareous manures enrich, are, *giving up manures readily, for use, and completely preserving them from waste.* These benefits would not immediately be perceptible, but would continue to increase, until the vegetable matter accumulated in the soil, was equal to its power of retention.

The next most valuable property of carbonate of lime, for the improvement of soils, is that of neutralizing acid. Our poorest soils, when new, contain vegetable matter in abundance—perhaps to excess—but their acidity counteracts their powers for production. A sufficient application of shell marl, or any other calcareous substance, destroys the acid, and allows the land, for the first time, to exert the power, which it actually possessed. This benefit is immediate; but though it may double the product of the soil, the calcareous matter has added nothing to its richness, nor can it, until it has both time and means, for accumulating and fixing vegetable matter. The salt of lime (whatever it may be) which is formed in this process, appears to be also a valuable manure, from the durability of the rich neutral soils, of which it is supposed to be an ingredient.

As I wish to find six of these specimens, five of rich and one of poor soil, to belong to the neutral class, being completely destitute of carbonate of lime. The remaining specimen was from a fertile soil, but so thickly covered with lime-stone rock, as to be unfit for cultivation. Of this, 1000 grains contains one grain only, of carbonate of lime. Thus it appears that the remarkable deficiency of calcareous earth, which I thought peculiar to this alpine district, extends even into the lime stone country, and perhaps through all America. I do not make this statement with the expectation of its being believed by those who are best acquainted with the European accounts of soils: but I hope it may induce others of undoubted ability, to pursue the investigation, and confirm the existence of this singular feature in most of the soils of this country. Perhaps no other single fact can lead to more important consequences to the science of Agriculture.

† Bergegan's Table of Affinity.

‡ Agricultural Chemistry, page 164, Am. Ed.

To these two properties, of destroying acids, and combining other manures with soils, I attribute the remarkable effects of carbonate of lime. It has several other fertilizing powers, which are equally well accounted for, from its known chemical properties. These will be hastily mentioned, though they are neither peculiar to calcareous earth, nor are their effects considerable enough, to add much to the productivity of land.

Calcareous manures possess in common with clay, the property of making sandy soils more absorbent, and in common with sand, that of making clays more light and friable—but in a greater degree than either. By fixing vegetable matter, they make soils blacker, and consequently warmer. They may also form part of the nourishment of plants, as all take up some calcareous earth, and shells also furnish animal matter; but I have never been able to perceive any effect which could be attributed to this cause.

Carbonate of lime always contains 43 per cent. in weight, of carbonic acid, which differs from all others in being not only innocuous to growing plants, but is indispensable to their existence. As much of every vegetable as may be converted into charcoal, is wholly formed by the decomposition of this acid, which the leaves are continually absorbing from the atmosphere. From the large proportion of this necessary food of plants, contained by all calcareous manures, their good effects have been attributed, by some writers, to vegetables drawing from them a more plentiful supply. This effect cannot be of much importance, nor can it take place, unless some stronger acid is present in the soil, which by combining with the lime, leaves the carbonic acid free to perform the office ascribed to it. By no other means will it be discharged, and, therefore, they who maintain the reality and value of this action, are bound to admit the existence of acid soils.

The practical effects of Calcareous Manures.

It is scarcely necessary to prescribe rules for the proper application of calcareous manures, as their action and the nature of the soil, ought to direct our practice, and vary according to circumstances. If the opinions which have been expressed are unfounded, it is evident, that the attempt to reduce them to practice, would most certainly shew their fallacy. These opinions direct us to expect both immediate and permanent benefit, from applying calcareous manures to acid soils—that on neutral soils the effects would be slow, gradual, and regularly increasing, as long as the soil is allowed to accumulate vegetable matter—and that on calcareous soils, the application would be either useless or injurious. On different soils of the same class, the greatest benefits must be looked for, where most vegetable or animal matter is present.—None of my experiments are of older date than four years back, and therefore are not decisive as to the ultimate effects of calcareous manures; but as far as they have gone, they have uniformly and fully sustained the theory by which they were directed.

My experiments have been confined to the use of carbonate of lime in that form which is so abundant throughout the lower part of this state—fossil shells mixed with earth, and commonly, though improperly, called marl. But the same effects would attend its use in any other form, as lime, (exclusive of its caustic and solvent qualities), limestone gravel, chalk, ashes, &c. The proportion of carbonate of lime, in most of the bodies of shell marl, which I have used, is less than usual—but one stratum contains a very small quantity of gypsum, which it will be necessary to notice. Had the presence of gypsum not been discovered in this singular stratum, its effects would have caused very erroneous opinions as to the action of marl: an immediate, but transient benefit was generally produced by the gypsum, where the carbonate of lime was believed to have no effect, for several years.

The following experiments will serve for a full and fair specimen, of all that I have made. I have marled another about 135 acres, including 40 of this year's work, not yet cultivated. Most of the circum-

stances stated, were noted at the time of their respective dates. The land, with such exceptions as may be mentioned, has been secured from grazing, since the year 1814, and was always marled on grass.

Experiment 1.—1818. New ground—poor acid soil; 2½ acres, covered at the rates of from 125 to 200 bushels per acre, with marl, (containing 37-100 of carbonate of lime.)

Result. In corn—supposed to be 40 per cent better than the rest. 1819. In wheat—the benefit as much or more. 1820. In natural grass not grazed—no difference in quantity. From the newness of the land, but little grass, and no sorrel as yet on the field.

1821. Marled it again, together with the adjoining land (11 acres in all) at the rate of 530 bushels of marl (37-100 carbonate of lime) per acre, and on a small part as much as 1000 bushels.

Result. In corn—the whole excellent for the season—the piece twice marled, better than the other, but the line of division, could not be distinguished as before. The spot covered most heavily, neither better nor worse for it.

Experiment 2.—Old cleared land near the last, and similar soil, but much exhausted—well dressed with vegetable manure in 1815, no trace of which remained. 1818—in 54 feet beds, well ploughed September preceding. In March, spread unrotted farm-yard manure along the water-furrows, and on three beds, also scattered marl, (33-100) 390 bushels per acre. The beds immediately reversed, and afterwards planted in corn.

Result. But little benefit from the manure, and not the least from the marl; nor was any observed (or looked for) in 1819 on grass, or in 1820 on wheat. 1821. In grass—a striking difference. In June, the strip could be distinguished to a line, by the almost total absence of sorrel, with which the adjoining land was covered, and by a luxuriant growth of bird-foot clover.

Experiment 3.—A quarter acre of rich neutral soil, covered with gypsum marl (53-100 carbonate of lime) at the rate of 250 bushels per acre. Ploughed deep and planted in corn.

Result. 1818.—By July, the difference equalled 50 per cent, after which, the adjoining corn gained on the manured, until no difference could be perceived. 1819—in wheat—no difference. 1820—in grass—easy to be distinguished by the absence of sorrel, which on the rest, has been increasing from the time the field was inclosed. Its growth, (principally bird-foot clover), also better. 1821—in grass—the difference much greater—its growth as luxuriant as I ever have seen of the same kind of grass, and thrice as good as on the rest. The sorrel as before. The spring and early part of summer remarkably wet.

Experiment 4.—A strip of ½ of an acre across the shelly island, marked 3 in the examinations of soils, covered at the rates of 200 and 500 bushels of muscle shell marl, (14-100.)

Result. 1819—in corn, and 1820 in wheat—no effect on either.

Experiment 5.—Another strip adjoining the last, covered with gypsum marl (33-100 of carbonate of lime), at the rate of 250 bushels. The soil also shelly, and capable of producing 20 or 25 bushels of corn to the acre, but not quite as rich or as calcareous, as the preceding subject of experiment.

Result. 1819—in corn—advantage over the unmarled, more than 50 per cent. 1820—in wheat; not as much. 1821—in grass, pastured; thickly set with a natural growth of white clover, of which there is not so much on the other marled strip, and very little on the land not marled. The results of the three last experiments, shew that all the immediate effects were produced by the gypsum, and not by the calcareous ingredient of the marl.

Experiment 6.—February 1819, marled an acre of poor brown sedge old field, at the rate of 160 bushels; marl (33-100) hauled and spread wet, and very unequally distributed. The land not ploughed then or since.

Result. No effect in 1819. In 1820, perceived the broom grass to be thinner and weeds taking its place, 1821; well covered with weeds, and but little broom

grass remaining. The adjoining land, as before, is under an unmixed growth of broom-grass.

Experiment 7. Of a poor light field, on which manure had never lasted longer than two crops, 7 acres were marled (33-100) at the rate of only 90 bushels—part of the same also covered with rotted farm-yard manure.

Result. 1819—In corn; no certain benefit, except along a small part of the dividing line. 1820—In wheat; something better. 1821—In grass; the difference still greater, but more in the kinds of plants, than in their luxuriance. No visible benefit from marl on the part to which manure was added.

Ex. 8. Adjoining the last, 4 acres marled at the rate of 180 bushels, and part also well manured.

Result. 1819—In corn, the part not manured has an advantage of 40 or 50 per cent. over the adjoining land not marled. 1820, in wheat, and 1821 in grass—the difference does not appear to have increased as in the preceding. On the manured land, some perceptible effect from the marl.—The improvement from manure (which however was heavily applied,) still remains.

Experiment 9.—Six acres of new ground, marled at the rate of 350 bushels. Soil, a poor white clay. Result. 1820 First cultivation, in corn—from 50 to 75 per cent. apparent benefit, but the whole piece so unequal, that no correct estimate could be made. 1821. In wheat—the difference increased.

Ex. 10—Sixteen acres of poor, light and acid land, covered at the rate of 1000 bushels of marl, (varying from 33 to not more than 17 per cent. of carbonate of lime, and all the balance, coarse sand.) Last cultivated in corn in 1816, and being too poor to bring wheat, had remained at rest and enclosed, the succeeding three years. The marling ended at a marked line, which was laid off through the exact difference. Cultivation the same, in all respects.

Result. 1820—In corn. The benefit greater and more uniform, than in any of the preceding. Three half acres were measured of marled land, and as many adjoining them, not marled—the product of each as follows:

Land not marled.		Land marled.	
bush.	pecks.	bu.	pkts.
1st half acre	7 1	opposite & adjoining	1st 12 2
2d do	7 1	do	2d 13 3½
3d do	7 2½	do	3d 15 3

The average increase, 12 bush, and three pecks of shelled corn per acre, being nearly 100 per cent. The season good, and the whole crop excellent for the soil.—1821—In wheat—very much injured by the wetness of the season—the marled part more than twice as good as the rest, which scarcely paid for seed and labour.

Ex. 11. Nine acres adjoining the last, marled at the rate of 400 bushels. Soil better—marl, and times of cultivation the same.

Result. No difference could be perceived where this joined the heavier covering of the last.

Ex. 12. One side of the 10th experiment ended in a productive neutral soil, through which a line was staked, having equal land on each side.

Result. No difference either in the corn or wheat. The three next experiments were made within the space of 150 yards, and on soils, which when in a state of nature, were precisely alike. They still differ in nothing but productiveness. The same may be said of the experiments marked 1 and 2, which were in the same field.

Ex. 13. Part of a level piece of new ground cleared January, 1821, marled at the rate of 600 bushels per acre, (37-100.) Soil—light loam; Pine Oak and Whortleberry the principal natural growth.

Result.—1821—In corn, 2,262 hills to the acre—On each side of the straight line on which the marl terminated, a piece 28 by 21 hills, was gathered, and (by a careful measurement) produced as follows: 553 corn-hills not marled, made 2 bushels of shelled corn, or 7½ per acre.

588 hills, marled, made 4½ bushels, or 16 3-8 per acre.

Ex. 14—March, 1821—An acre, in the middle of a

piece, cleared in 1815, was covered with 500 bushels of sand containing 23-120 of carbonate of lime. This piece had before only borne one crop, (in 1818,) and therefore may be supposed to contain an abundance of rotted vegetable matter, and to be now in the highest state of productiveness, of which such a soil is capable. Four adjoining quarter acres, two within, and one on each side of the marling, produced as stated below. The land was supposed to be perfectly equal, but the growth of the corn shewed that there was a slight deterioration extending gradually across the ground, which affected the measurements in the same order as they are numbered.

Quarter acres not marled. Quarter acres marled.
No. 1, 6 1-8 bushels adjoining No. 2, 8 1-2 bushels
No. 4, 5 1-8 bushels adjoining No. 3, 8 1-8 bushels

2) 11 1-4	2) 16 5-8
5 5-8 average, or 22 1-2 bushels per acre	8 5-16 average, or 33 1-4 bushels per acre

Ex. 15. Land cleared 25 years ago, and brought almost to the lowest state of exhaustion, of which a level and acid soil is capable. Cultivated in corn in 1815, since which time it has remained at rest and enclosed, but received one good ploughing in the fall of 1817. But little apparent improvement from this long respite, except where it is made evident by the application of marl. The effects were ascertained on adjoining, and equal land, on the crop of the present year.

A quarter acre, not marled, produced 2 1-8 bushels of corn.

A quarter acre marled, 5 5-8 bushels.

Of the 13th and 15th experiments, the difference was much greater in the quality than even in the quantities stated. The measurements were made in the ears, allowing two for one of shelled corn, and every nubbin thrown in. Not half the corn of the two pieces, not marled, were sound and fully mature. The season has been more unfavorable to forward or good corn, than to indifferent and late—as no rain fell from the middle of July, to the first of September.

In the spring of 1819, Mr. Thomas Cocke, of Aberdeen, marled some acres of a poor acid field, which had been always *close grazed*, when not under cultivation. The marl contained 40-100 of carbonate of lime, and was laid on at the rate of 500 bushels per acre. The piece included both stiff and light soil.

Result.—The succeeding corn and wheat crops were benefited but slightly, supposed to be about 15 or 20 per cent.—Since pastured, and the marled part is now (August,) grazed quite bare to its limits, whilst the surrounding land has a considerable cover of grass, which the cattle have rejected.

The following facts were formerly referred to, as the only known proofs of the value of shell marl, as a durable manure.

Three small pieces of poor land, neither exceeding 30 yards square, were marled by Mr. Thomas Cocke, 18 years ago. The rate not known, but the present appearance shews that it was very thick. The land before and since, grazed when not under a crop, and never manured. Very little benefit was perceived, until long after it had ceased to be looked for. During the last four years, (which is as long as I have observed them,) two of the pieces, one stiff and the other light, have produced at least twice as much grain as the surrounding land: the third piece, which is on a light hill side, is ruined by the application.

At Spring Garden, in Surrey, 10 or 12 acres of poor light land were marled 45 years ago. The farm, previous to the last nine years, was under the then usual *two shift* system—that is, cultivated in corn every other year, followed by wheat, wherever it was sown, and close grazed during the short interval of rest, between wheat harvest, and the next winter's ploughing for corn. Since then, it has been enclosed, judiciously cultivated, and is improving throughout. Mr. Francis Ruffin, the present proprietor, shewed me this field in January, 1819, then under grass, and even at that time of the year, I could easily discover the commencement of the marling by

the difference in growth: the improvement, however, was not perceptible throughout the piece. No certain information has been obtained of the effects, during the first 25 years. Mr. R. states that he remembers the marled land to have been generally seeded with wheat, and the surrounding land left out on account of its poverty; and that this difference of treatment sometimes extended to the crop of corn. He thinks that the difference of production, when the season has been very favourable, is but small—but is remarkable when the season is bad, as the marled piece is but slightly affected, when the other is most injured by wet or dry weather. Still, candour requires that I should add, that Mr. R. though devoted to the improvement of his farm, does not consider the profits from marl sufficient to induce his adoption of its use. So different are the conclusions, which may be drawn from the same facts.

An experiment at Banacond, near 50 years old, was not known to have been made, until 1819, when it was brought to light by the old negro who had carted out the marl. This piece is near an acre, in the middle of a poor field, and was so much better than the rest (though the cause was not then suspected,) as to receive no part of a dressing of farm-yard manure, which was applied to all the surrounding land, eight years ago. Notwithstanding this manuring, the adjoining land is not equal by more than half, to that which had marl alone. This field, like the rest of the farm, was under exhausting cultivation, until it was enclosed in 1813.

Though we have no information of the early effects, of the oldest of these experiments, yet there is little question of its being inconsiderable. In no instance was the practice judged profitable enough to be continued. The experimenters expected shell-marl to shew effects like dung, and their close grazing prevented its proper action being seen. They were therefore compelled to believe, that it was not worth using. At this time, however, these experiments shew such results, as to prove completely the permanency of this manure. Had the system of cultivation pursued subsequent to the application, been meliorating, instead of exhausting, the superiority of the marled land would have been increased in proportion.

We have abundant proof of the durability of calcareous manure, from its common application in another form, so different from shell marl, that it seems not to be suspected, that the properties and action of the two substances are precisely the same. 'Tis a common saying, that "land never forgets where an old settlement once stood," and this well known improvement is entirely owing to calcareous manure. The land around an old dwelling, is always manured (whether intentionally or not,) with wood ashes, which, from their composition, may be correctly called *artificial marl*. Drawn ashes and shell marl are composed of exactly the same ingredients, except that the former contains also some phosphate of lime. I admit that old settlements must be also enriched by animal manure; but that, alone, an acid soil would soon "forget;" as we continually see proved by the fleeting benefits of our summer cow-pens.

The quantity of carbonate of lime taken up by any crop, from an acre of land, has been ascertained (says Dundonald) not to exceed 80 lbs. in weight. As this is the only passage by which it can escape, a good covering of shell marl would not, at this rate, be all drawn from the land, by 200 successive crops. But though no renewal of marl may ever be required, it would not prevent the soil being exhausted of its vegetable matter, and thus utterly ruined by continual severe cropping. For the improving farmer, no means can be more effectual than the shell marl. But if the usual exhausting course continues to be pursued, though calcareous manures might for a long time increase the crops, yet their ultimate and certain result, would be the complete exhaustion of the soil, by its freely yielding supplies to vegetation, which its former acidity would have withheld.

It was stated, that from the properties of calcareous manures, they must be most beneficial on such soils, as are stored with the greatest quantity of ve-

getable manure. But the foregoing experiments show, that though such is the case, when the vegetable-matter is derived from enclosing, it must have been little or no visible effect, when combined with an application of animal or vegetable manure. Vegetable matter accumulated in a poor soil by enclosing, contains as much of acids, as the soil produces so much, by removing the evil, that marl produces so much immediate effect. The acid of farm yard manure, is of small amount, compared with its soluble nutritious matter. As calcareous manure increases production only by indirect means, its immediate effects must bear a certain proportion to the previous powers of the soil. Suppose it to increase the first crop 180 per cent. on an acid soil in the best state, and as much on another, ruined by exhaustion: in the first case, the increase might amount to 15 bushels of corn per acre, and in the last, to not more than two or three bushels. Marl alone, applied to a naked gull, would never improve it. The immediate effects of animal and vegetable manures are very different, as they bear no proportion to the state of the soil, and are most striking on the poorest. 'Tis possible to raise 50 bushels of corn from an acre of the most sterile land, by a wasteful application of these manures, which directly furnish the food of plants. The evident consequence of these different kinds of action, is, that the immediate benefit of marl would be exceeded, and in a great degree concealed, by other manures applied at the same time, which the durable effects of both, might be most profitably secured, by their union.

My applications of shell marl have been in general much heavier, than I consider advisable. Wishing to ascertain its full power, heavy dressings were laid on, that no renewal might ever be wanting, and that whatever improvement might be gained from vegetable matter, there should be always enough of the calcareous to secure it. This course is best for experiment—but its action and power is known, it is more economical to apply it in quantities as small as will suffice to neutralize the acid, and give the soil a slight capacity for improvement, and to repeat it, as the accumulation of vegetable matter may require, until the soil arrives at the highest state of productiveness.

The labour required for using shell marl, is now the greatest obstacle to the practice, even with some of those, who from observing the whole progress of my experiments, are well satisfied that I have not overrated the benefits derived. It is held as shewing but little prudence, to expend on the marling an acre of land, more than the price at which it could have been sold. The previous value of the land has no bearing on the question, nor indeed has the expense per acre. If by laying out \$100 on an acre of poor land, it would produce annually for ever, an increased clear profit of only \$10, it would be a highly profitable investment. I have carefully, and with all possible accuracy, estimated the cost of two considerable pieces of marling. The first of nine acres (the experiment marked 10) cost \$10 per acre for digging, hauling and spreading, at the then high prices of provisions and labour. The increase of the first crop averaged 12 bushels and 3 pecks per acre, which if it had sold at the price which was usual in 1819, when the marl was applied, (\$3 50 per barrel,) would have nearly paid the whole expense, by the increase of the first crop. The marling of 20 acres this year (from a pit which requires uncommon labour) at the average hauling distance of 635 yards, and at the rate of 665 bushels per acre, cost \$8 88, or 18 cents the cubic yard of 20 3/16 bushels. Should the land be ben-fitted, as much as my experience gives me a right to expect, the increase of the first two crops, will repay the whole cost, even at the present low prices of grain. In some other cases, where the distance was small, and the digging easy, the expense was as low as \$4 per acre. I would be much pleased to see exhibited a correct estimate of the expense of making and applying farm yard manure, and its full return on acid soils. The calculation, I fancy, would present results very different from the foregoing, and such as

would astonish all who consider the practice profitable.

A great mass of matter on marl and other calcareous manures, is contained in English agricultural works; but though much correct information is given, its value is lost, by being confounded with a greater number of statements, which are loose, contradictory or false. To discriminate between the truths and errors of these works, would require a previous acquaintance with the subject, surpassing that of most of their authors. In some parts of England, any pure clay is called marl, and even some writers who treat of this manure, leave us to doubt, whether they would not define it in the same way. The county of Norfolk, in England, has been brought from a poor, blowing sand, to a high state of productiveness, principally by the use of marl: but the action was directly the reverse of marling in this country. The sands of Norfolk contained calcareous matter in abundance,* and I should therefore attribute their barrenness to the excess. The clay marl used, though containing some calcareous earth, actually served to diminish, instead of increasing the excessive proportion of the soil, at the same time that its clay gave the tenacity which was wanting. With the same views, Dickson very properly recommends clay marl for the improvement of chalk soils. The authors on whose knowledge and accuracy we can fully rely, when they mention the effects of mar, only to inform us how much of calcareous matter may be present, in either the manure, or the soil, (both of which 'tis essential should be known,) and their readers are left to guess in what manner the operation is produced. Davy states as a general rule, that all soils which are deficient of calcareous earth, require such manures; and this simple proposition (which he appears to consider so self-evident as to require no proof,) conveys more of instruction and truth, than the whole body of English authorities on this subject, taken together.

When I first recommended the use of shell marl, in 1813, no information whatever, of the practice had been given to the public, nor was it known to us in this neighbourhood, that any other experiments had been made in the United States, than the very few of a prior date which I have stated. Since, however, I have learned that the value of this manure, was practically known in the counties of King William and James City; and in the latter, its use is now rapidly extending. I have made several attempts to procure from different farmers of these counties, some account of the effects experienced—but without success, or even the least encouragement to continue such inquiries. It appears from some general notices in the newspapers, that shell marl is used extensively in New Jersey. Two very valuable papers on this subject have since been published. The first of these is Mr. S. Angleton's letter "On Shell Marl," (in the 4th volume of *Memoirs of the Agricultural Society of Philadelphia*;) which gives testimony to the worth of this manure, from a very intelligent farmer, who has used it longer, and to greater extent, than any other in the United States. The other is Dr. Black's essay, "On the intrinsic value of land," published in the second volume of the *American Farmer*. This essay may at first be thought to contradict rather than sustain my opinions, as the author speaks so slightly of marl, as no way tends to encourage its use. This seeming contradiction is only a striking example of the necessity of attending to the *properties* of manures, with out regarding their *names*. Dr. Black's plan of improvement is founded on the use of *lime* which he considers essential to the object in view. Caustic lime has powers entirely different from mild lime, and of which I have not spoken, as they are not connected with my subject; but that essay informs us, that the author does not look for the benefit from lime in the first crop, and it is certain, that it must become carbonated, and its caustic action ceased, before the second year. We must therefore attribute nearly, if not quite all the benefits which Dr. Black has thus derived, to carbonated or mild lime, which has precisely the same properties with

* Kirwan on Manures.

shell marl; and the whole argument in favour of caustic lime, goes in support of the carbonate.

When opinions are advanced which are either unsupported by, or directly opposed to those most generally received, it is highly necessary to state them as clearly and distinctly as possible. Such has been my object throughout this essay;—every less important requisite of composition, has been sacrificed for the sake of perspicuity, and perhaps I may thus have subjected myself to other charges, besides that of being tedious. In no other respect, however, do I offer any apology, nor ask favour or forbearance towards the opinions presented. If my views are well founded, they deserve consideration; if erroneous, it is proper that they should be fully exposed, and none will see their errors corrected, more willingly than myself.

EDMUND RUFFIN.

Coggin's Point, Oct. 7th, 1821.

Explanations of terms used in the foregoing Essay, necessary to the right understanding of the author's argument, by persons who are not familiarly acquainted with Chemical expressions.

Acids—Bodies are so called if sour to the taste. They turn vegetable blue dyes red; they mix freely with water, and are generally formed by the union of a known base, such as sulphur, with portions of pure air or oxygen: see sulphuric and other acids.

Acetic Acid, is vinegar highly purified, or concentrated by distillation.

Affinity, or Attraction, is the disposition of bodies to combine—thus water dissolves or combines with salt, which it would leave in order to unite with spirit of wine.

Alkalies, are volatile or fixed; the volatile evaporates when exposed to the air, and is often seen in the form of Hartshorn used to prevent fainting—the fixed alkalies are pot-ash obtained by evaporating water which had been drawn thro' common wood ashes—and soda, obtained by evaporating water which had been drawn through the ashes of vegetables which grew on the sea shores.

Alum, consists of pure clay or Alumina, a little pot-ash, sulphuric acid and water.

Alumina, is the earthy base of Alum—and hence called Alumina—it is that body which gives to clays their peculiar properties—heat which expands most bodies diminishes the bulk of clay—it is the chief material of China and stone ware.

Base, is a term used to denote the earth, the alkali, or metal of which a salt or acid is formed; thus Alumina is the base to which we add sulphuric acid when we would form Alum; and sulphur, the base to which we unite oxygen or pure air, to form sulphuric acid.

Calcareous Manures, are mixtures of sand and clay, with lime in the form of decayed sea-shells or chalk—these we call Marl; or they are chalk or lime, usually in the shape of carbonate of lime.

Carbonate of Lime, occurs in the form of chalk, marble, lime-stone, sea-shells, &c. and when either of these are kept for some time in a white heat, the carbonic-acid is disengaged or driven off—leaving them in the form of quick or caustic lime, as we used to make mortar—it is to the power and disposition of this caustic or quick lime, to unite again with carbonic-acid and to solidify water, that mortar becomes hard.

Carbonate of Pot Ash, is formed by the union of carbonic acid, with the pot ash of commerce, which contains only half the quantity of carbonic acid found in carbonate of pot ash.

Carbonic Acid, is obtained only in an aerial form—it has not yet been condensed like other acids, into a liquid—it is created by fermentation, by combustion, or respiration—it extinguishes flame and life—it may be procured by distilling sulphuric acid on chalk. The sulphuric acid, displaces and frees the carbonic, and uniting with the chalk, forms gypsum, or plaster of paris.

Caustic Lime becomes mild or carbonated, by combining with carbonic acid, found in the air or soils, as it does when it becomes air-slacked, and loses its power to produce heat if exposed to water.

Chalk—100 parts usually contain 57 parts of lime, and 43 parts of carbonic acid.

Clay, is the earthy base of alum, called *Alumina*, mixed with more or less *Silex*, or flinty sand; and sometimes has magnesia or lime in it.

Epsom Salts, were produced originally by evaporating the water of Springs at Epsom, in England—these salts consist of sulphuric acid and magnesia—they exist in Sea Water, and are found in solution, when the common, culinary salt has crystallized, after a large part of the water has been evaporated.

Gas, is a term which includes all the airs that differ in their properties from the air of the Atmosphere, and this is composed of three Gases—OXYGEN, or pure air, the support of life and combustion—AZOTE, or impure air, the basis of nitric acid, which united to pot ash, forms Salt Petre—and CARBONIC ACID GAS. Water is formed of two Gases—oxygen or pure air; and hydrogen or inflammable air, the cause of flame.

Gypsum, or Plaster of Paris—contains 43 parts sulphuric acid, 33 parts lime, and 24 parts water in the 100—it is soluble in 460 parts of water at a temperature of 60°

Loam, may be considered a clay of loose or friable consistency, mixed with mica or isinglass, and iron-ochre.

Magnesia—as known in commerce, contains 34 parts carbonic acid, 45 parts magnesia, and 21 parts water—it exists in sea water, connected with sulphuric acid, and may be obtained by adding pot ash, to which the sulphuric acid will unite, and thereby free the magnesia—it is almost insoluble in pure water, but will combine with and solidify it, as lime does, when we make this into mortar.

Marl, is a mixture of carbonate of lime, and clay, the varieties differ as they contain more or less lime, or sand, or the adhesive part of clay—in a clay soil, marl, abounding chiefly in lime and sand would be best—in a sandy soil, that which is not only rich in lime, but also in the tenacious part of clay, would be preferable.

Mordants, is a term which dyers use to designate the substances that are employed to dispose the colouring particles, to unite permanently and brilliantly, with the objects to be dyed.

Muriatic Acid, is obtained from sea salt, when combined with soda, by forming our table or culinary salt—by pouring sulphuric acid on sea salt the muriatic acid is displaced, and the soda then uniting with the sulphuric acid forms the well known, us-lul, Glauber-salts.

Neutral Salts—are formed when acids unite with Alkalies, so as to disguise each others properties: thus SULPHURIC ACID, which is intensely sour, unites with SODA, or the alkali of sea-salt, which is corrosive, and Glauber salts, are the result of their union.

Oxalic Acid—is obtained in a crystalline form from Sugar, distilled with nitric-acid, and hence it has been called the Acid of Sugar—it exists in the wood-sorrel *oxalis acetosella*, diluted in much water it is pleasant, but concentrated—or mixed with little water, it is very acid.

Oxygen—100 parts of the atmosphere contain 21 parts of Oxygen gas or vital air—its presence is necessary to support life or combustion, and to the germination of seeds; all these must cease when it is absent—united to sulphur they form sulphuric acid—united with hydrogen gas they form water.

Oxygenated—we say a body becomes oxygenated when it unites with oxygen—thus iron combined with a certain portion of oxygen is black, and with a still greater portion becomes red or rusty.

Peat, or the black moss of moors, strictly speaking, is not found in many places, and so where so frequently as in Scotland and Ireland, where the bogs abound with, and afford it in great quantities for fuel.

Phosphate of Lime—is the basis of Bones, and consists of Lime 70 parts, and phosphoric acid 30 parts—this acid is found free in *onions*. Phosphorus may be obtained from burnt bones, by a complex process—and Oxygen, with this base, form Phosphoric-Acid.

Pneumatic Apparatus—is this designed to measure aiform fluids or gases—a very simple one is described and represented in Davy's Agricultural Chemistry; it consists of a bottle which holds the acid to be used—this bottle is closed at the upper end by a glass stopple, and it has a stopcock towards the other end, through which the acid may be passed at pleasure; this end is fitted into the neck of a larger bottle, into which the soil to be examined is placed, and from one side of which a tube passes, having an empty or flaccid bladder at its termination, within the neck of a larger vessel that is filled with water; so that when the acid has flowed upon the soil, the elastic fluid which it generates, passes thro' the tube, and dilates as it fills the bladder, which causes some of the water in this vessel to flow through a spout into a graduated measure, and by its volume indicates the proportion of gas disengaged; every ounce measure of Carbonic Acid Gas, indicates the presence of 2 grains of Carbonate of Lime.

Precipitate—when we put a substance into any solution, and this causes the others to separate, and one of them to fall, we say it precipitates the falling body—as when we pour spirit of wine, rectified spirit, into a brine or mixture of salt and water, the spirit unites with the water, which lets the salt fall or be precipitated to the bottom of the containing vessel.

Sands, are *sileceous*, or the well known flint stone in a pulverized state; or they are *calcareous*, being lime stone, or sea shells reduced to the state of sand.

Sulphate of lime, is plaster of paris; see gypsum. Sulphuric acid, was formerly obtained by distilling green vitriol, a salt known in commerce as Copperas, and composed of iron and sulphuric acid, hence this acid was called *oil of vitriol*—but it is now procured by burning a mixture of sulphur and salt petre in chambers lined with lead, having their bottoms also covered with water to condense or absorb the acid vapors.

Vegetable acids—the *acetic acid*, is found in the sap of trees; the *oxalic acid* in sorrels; the *tartaric acid* in grapes, sumach, &c.; the *citric acid* in limes, whortleberry, cranberry, &c.—the *malic acid* in apples, and the *gallic acid* chiefly in the bark of most trees.

Vegetable Extract, was formerly used to designate all those substances, which may be extracted from plants by means of water, and which remained behind in the state of a dry mass, when the water was evaporated.

BROAD TAIL SHEEP.

MONTICELLO, June 12, 17.

Sir,—I have to acknowledge your two letters of April 8, and May 11, on the subject of the broad-tailed sheep. It is to be observed that there are different races of them, very distinct, and very different in merit. Three of these have fallen under my observation: 1st. Those from the Cape of Good Hope, with broad tails turned up like that of a nicked horse—long legs, light bodies, and slight fleeces. 2dly. Those from Algiers, of somewhat less stature, and a better form and size: and 3dly. Those from Tunis, of low stature, round bodies, full fleeces, of

good quality, hardy, thrifty, always fat, and of high flavored flesh.* It must have been of these last that Gen. Eaton brought to this country. I received myself a ram and ewe, brought in one of our vessels from Tunis direct: but the ewe would never breed; her massive tail never admitting the commerce of the ram. I have bred from the ram, in and in, for ten years past with a different race, and have found that when a ewe gets to be about $\frac{3}{4}$ pure blood, the same obstacle becomes so enlarged as to prevent further procreation. I continue this breed for the use of the table, and because the wool is as good as that of our ordinary sheep. I have merino's in a separate situation: but their wool cannot be used for coarse purposes, and there is no demand for it here, which renders them less profitable than others. I have in still a distinct and distant situation, another Spanish breed, which, yielding to the broad-tail as to the table, is in other respects the most valuable of all, hardy, heavy-bodied, heavy-fleeced, and of good staple, for country service. It is the best cross for the broad-tailed breed.—This information, slight as it is, is all I am enabled to give you, and pretends to no other merit than that of proving to you the sentiments of respect and esteem of which I beg leave to assure you.

TH. JEFFERSON.

GEO. W. JEFFREYS, N. C.

*We are happy to announce the arrival of a pair of this race, by the *Plato*, Capt. Packwood, as a present to the Editor's breeding stock establishment from Com. Jones and Capt. Booth of the Navy. Of this, and of other very flattering evidences of the approbation of his undertaking, from officers of the Navy and others, the Editor will give a more particular account hereafter.—*Edit. Am Farmer.*

AN INQUIRY.

The description of a system of Tanning, on a plan which could be executed by farmers in general, on their own plantations, would perhaps be of great service to many of your subscribers.

THE FARMER.

BALTIMORE, FRIDAY, DECEMBER 28, 1821.

PRICES CURRENT.

Flour \$6, 4 months—Gram, of every kind, with the exception of Corn, which is a little in advance, same as last report—Shorts, 20 a 23 Bran, 18—Flax, seed, per bushel, \$1—Hogs-lard, fresh, per lb. 10 a 12—Beef, Baltimore prime, \$8 75 a \$9 75—Cotton, N. Orleans, per lb. 18 a 20—Georgia, upland, do. 16 a 18—Plaster Paris, per ton, \$3 87 1/2 a \$4—Salt, St. Ubes, 55 cts per bushel—Lisbon, do. 50 a 56—Cádiz, do. 50—Turks Island, do. 60 a 65—Butter, 25 a 31—Cheese, 8 a 12—Eggs, per dozen, 25—Potatoes, 40 a 45—Wood, hickory, per cord, \$6 a \$6 25—Oak, do. \$4 a \$4 50—Pine, do. \$2 75 a \$3 25—Pork, hog round, \$5 a \$5 50.

Maryland Tobacco—Few sales, and same as last report.

Virginia & Kentucky Tobacco—none.

Printed every Friday at \$4 per annum, for JOHN S. SKINNER, Editor, by Joseph Robinson, at the N. E. corner of Market and Belvidere-streets, Baltimore, where every description of book and Job Printing is executed—Orders from a distance for Binding, with proper directions, promptly attended to.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL. III

BALTIMORE, FRIDAY, JANUARY 4, 1822.

NUM. 41.

AGRICULTURE.

TO THE EDITOR OF THE AMERICAN FARMER.

Sir—You will confer a favour on the United Agricultural Societies of Virginia, by the publication of the enclosed paper.

Your's respectfully,

EDMUND RUFFIN,
Secretary to the Delegation.

A REPORT ON THE NAVIGATION LAWS, AND A REPORT AND PETITION ON THE EXISTING TARIFF OF DUTIES; FROM THE DELEGATION OF THE UNITED AGRICULTURAL SOCIETIES OF VIR- GINIA.

At a general meeting of Delegates from the United Agricultural Societies of Virginia, held the 5th, 6th and 7th of December, 1821—the following Reports and Petitions were submitted and unanimously approved, and the Secretary instructed to have published 500 copies for distribution among the members of the United Societies.

RICHARD FIELD,

Vice President of the Delegation.

EDMUND RUFFIN, Secretary.

Report on the Navigation Laws.

The committee appointed to enquire what as been, and is likely to be the effect produced on the Agriculture of the United States, by the "act concerning the navigation of the United States," approved March 3d, 1817, and the act supplemental thereto, or any other acts for the protection or encouragement of commerce and navigation, with directions to report their opinion thereon to the present meeting of the Delegation, with a petition on the subject, if in their opinion it be expedient, having according to order had the same under consideration, and report as follows:

That your committee deem it unnecessary on this occasion, minutely to investigate the general effect of restrictive regulations, with a view to the promotion or encouragement of a particular branch of the industry of a country. The decided and they believe the unanimous and repeated expressions of the opinion of the Delegation on that subject, warrant the conclusion, that it is unnecessary again to attempt to prove by argument what has been already so clearly established and illustrated by the Delegation, and which is in accordance with the principles of every enlightened modern political economist—that such regulations are impolitic and pernicious in their operation. The system of encouragement by restrictive regulations was, they conceive, truly the offspring of feudal barbarism and ignorance. The inhabitants of the towns acquired the favor of the government by aiding the monarch in humbling the power of the barons, and commerce and manufactures, the industry of the towns, were therefore fostered by privileges, monopolies, and bounties, at the expense of the rest of the community. But it is fortunate at this time, that facts and experience as well as principles afford to the enlightened political observer, the fullest illustration of the pernicious tendency of this system. In England, where the principles of it have been

practised and supported with most plausibility, and where most talent and ingenuity have been enlisted on its side, the most glaring absurdities and inconsistencies are presented. Bounties, privileges, and monopolies were at first dispensed, for the encouragement of manufactures and commerce. In the lapse however of a century or two, famine and scarcity warned the Legislature of that country of the degradation to which agriculture had been reduced by these unjust and oppressive privileges and restrictions. It was then thought necessary that some encouragement should be extended to agriculture. And instead of retracing their steps, of abolishing the oppressive privileges which had been conferred on the merchant and manufacturer, by which agriculture had been relatively degraded and taxed, first a bounty and then a monopoly has been tried. And the government of England now exhibits to the world this preposterous solecism—it taxes and oppresses agriculture for the encouragement of commerce and manufactures;—and it taxes and oppresses commerce and manufactures for the encouragement of agriculture! Bounties, privileges, and monopolies are mutually given and received, with perhaps no other effect than an increase of the patronage, and consequently the corruption of the government. Against measures of such a tendency, your committee conceive, the agriculturists of this country can never be too much on their guard.

Your committee having thus briefly adverted to the tendency of measures for the encouragement of particular branches of industry, will now proceed to a more particular examination of the acts of the Congress of the United States, specified in the resolution to them referred, to wit: the act concerning the navigation of the United States, and the act supplemental thereto. So far as these acts have the general tendency of restrictive regulations, they are liable to all the objections to which such regulations are exposed. By lessening the competition among the buyers, they tend to lower the price of our surplus agricultural produce, and by lessening the quantity of foreign productions in our market, they tend to raise their price. Contrary to the soundest maxims of individual or national prudence and economy, they cause the agriculturist to sell cheaper, and to buy dearer, than would otherwise be the case.—But the objects and tendency of these acts require further development. Their immediate effect was to annihilate totally the direct trade which was carried on between the United States and the British West-India possessions. This trade consisted almost exclusively in the exchange of the surplus rude produce of our soil for that of the British Islands, and was in the opinion of your committee, greatly and mutually beneficial to the agriculturists of both countries. It is true that this trade, according to the principles of the British colonial policy, that with short intervals has operated ever since the acquisition of these possessions, has been carried on entirely in British vessels, yet it appears to your committee to have been eminently advantageous to the agriculturists of the United States, because in return for cargoes of West-India produce, which were brought in, cargoes of our surplus agriculture were carried back. But our Commercial citizens complained that they were not allowed to participate in the advantages of this trade, by being the carriers of the productions of their soil; and contended that it was the duty of our government to remedy the injustice of which they complained by a retaliatory measure on British Commerce. They asked that the trade between our country and the British West-India possessions might be regulated by the same principles as those on which our direct

trade with Great Britain is carried on;—and considered that a retaliatory measure, such as the one adopted by Congress, by which British vessels are excluded from bringing us the productions of the West Indies, unless our vessels are allowed to carry our own in return, would compel the government of Great Britain, to accede to our proposition of putting this commerce on the footing of fair reciprocity.—Your committee trust that the agriculturists of the U. S. will never be insensible to the duty which they owe to every class of its citizens, that they will cheerfully submit to any reasonable sacrifices for the purpose of relieving them from the operation of oppression and injustice. But it appears to your committee that the evil under which our navigating fellow citizens laboured, if within the reach of any remedy which the Congress of the United States can apply, is not yet at all likely ever to be removed or alleviated by the measures to which recourse has been had. Your committee admit the propriety of retaliatory restrictions for the purpose of retorting on the aggressor in commercial warfare the evils of his own injustice, provided that in any particular instance, there is a probability that they will procure that freedom of commerce contended for. And they would therefore entertain some hope and derive some consolation amidst the privations which the agriculturists suffer from the acts in question, if they could suppose that the blow which has been aimed had fallen on the real authors of the injury. Such however does not appear to them to be the fact. And it is from this cause they believe, that the experiment which has been imprudently and inconsiderately tried, has failed. The British possessions in the West-India are, as to commercial regulations, governed by a Legislature, which does not look alone to their prosperity, but which on the contrary has always notoriously sacrificed the interest of the colonies to that of the mother country. The very object which the government of Great Britain professes to have in view, in the acquisition of colonies and dependencies, is, to secure a monopoly for their merchants and manufacturers. And it is their navigating and shipping interest which that government consults in framing their commercial laws for the West-India Islands. But in proportion as the trade of those islands is roundabout and indirect, just in the same proportion is the shipping interest promoted. Our acts then it appears to your committee, instead of coercing the government of Great Britain, actually co-operate in its views. They may and no doubt do press with considerable severity on the inhabitants of the British Islands; and it is highly probable, if they had the power, that our commercial relations with them might be placed on the fairest footing of equality. But whilst the government of Britain retains its controlling power, and whilst the shipping interest of that country is consulted, we can never expect our restriction acts to have the effect of obtaining for our navigating citizens an equal participation in the trade of the British West-India possessions. The present, and in the opinion of your committee, the permanent effect of these measures as long as they are continued in operation, must be,—that because a foreign government has done some injury to the navigating class of our citizens our own government has, without any prospect of benefit accruing from it, inflicted another and deeper injury on the agricultural class.

Your committee believe that there are other acts of the Congress of the United States, for the protection or encouragement of commerce and navigation, which produce effects prejudicial to the interest of the agriculturists. They would however prefer abstaining

from the language of complaint unless in cases where the grievance was heavy and obvious. They therefore forbear to notice them on the present occasion.—And as the acts which form the subject of this report, were enacted under the impression that they would operate coercively on Great Britain, and by affecting the interest of the governing classes in that kingdom induce the government to abandon its colonial policy, and to place our commerce with its West India Islands on a footing of reciprocal freedom; your committee trust that the experience of the last four or five years has been sufficient to dispel the illusion which then prevailed; that Congress in its wisdom has been convinced of the impolicy of these measures; and that it will restore to us for the benefit of the agriculturists that portion of commerce of which we have been deprived by unsuccessful, and as it appears to them, a most improvident experiment. Under these considerations your committee deem it inexpedient, at the present meeting of the Delegation, to present a petition on the subject.

All which is respectfully submitted, &c.

REPORT ON THE EXISTING TARIFF OF DUTIES.

The committee appointed at the last meeting of the Delegation of the United Agricultural Societies of Virginia, with instructions "to prepare and lay before the next general meeting of Delegates, a petition to the Congress of the United States, praying for a reduction of the Tariff of duties, &c."—concur in making the following

REPORT

In performing the duty assigned to us by the Delegation, it was found that both the importance and novelty of the subject, required a more minute investigation, than could with propriety be exhibited within the limits of a petition. It was therefore deemed most proper to lay before the Congress of the United States, only the general propositions on which the prayer of the societies is founded, and to submit to the Delegation separately, an expositor of the evils which accrue to agriculture and the nation, from the present tariff of duties on importation.

To oppose the general policy of encouraging manufactures by prohibiting duties, is at this time unnecessary. That question has already been sufficiently discussed by the Delegation, and they have been supported by concurrent memorials of the people from Maine to Georgia, remonstrating against the increase of duties with which the nation was threatened. The voice of the people has decided against the theoretical principle of the tariff of 1816, and we have now only to contend with its practical evils.

From the adoption of the federal constitution to the present time, nearly the whole revenue of the general government, has been derived from duties on importation. This mode of taxation, while restrained within proper limits, was the most equitable that could be devised. It is preferred by the people, for the ease with which its payments are made, and by the government on account of the cheapness and certainty of its collection. But it is perhaps somewhat questionable, whether its real and alleged advantages, may not be counterbalanced, by the evils and abuses which are inseparable from indirect taxation. The merchant's usual and necessary commission on the duty, makes the collection dear to the consumer, although cheap to the treasury; and the lightest impost is some obstacle to that perfect freedom of trade

and industry, which would most promote the national prosperity. By confounding the taxes on commodities with their prices, they cannot easily be distinguished, and this enables governments to abuse the power, as they have invariably done to the injury of trade and industry, and even of the treasuries, which they intended to increase. We shall show how far the existing tariff varies from its only proper and legitimate object, the collection of revenue, by a fair and equal tax on consumption;—and urge sufficient reasons for that reduction of duties, which is not less requisite for the benefit of the treasury, than for the relief of the people.

The *ad-valorem* duties fixed by the tariff of 1790, were only 5 per cent, on most imported commodities, and on none did the rate exceed 15 per cent. They received several augmentations previous to 1804, at which time, the greater part of the *ad-valorem* duties were rated at 15, and the highest at 22½ per cent. These rates continued until 1812 when our war with England commenced, on which account all duties were doubled, under the pledge of Congress, that the law should be repealed within a year after the termination of hostilities. When this augmentation took place, a considerable addition to the public revenue, was necessary for national defence, and this heavy charge therefore met the cheerful acquiescence of the community, and by no part more readily than the counties to which our societies belong. In 1816, the war duties were substituted by the present tariff, which was completed by a few additions in 1818. This tariff, so far from restoring the duties which were in operation previous to the war, increased them generally 50 per cent, and on some of the most important foreign commodities, (low priced cottons, iron in bars, &c.) exceeded even the double war duties. Had the receipts of the national treasury corresponded with this augmentation of duties, it would have afforded some consolation; but the well authenticated delacation of many former sources of revenue, has afforded additional evidence of the truth of the aphorism, "that in the arithmetic of the customs, *two and two* do not always make *four*, and frequently less than *one*."

The high duties exacted under the tariff of 1816, have effectually prohibited the importation of articles which antecedently had contributed in an important degree, to augment the receipts of the treasury. Of course, so many of the sources of revenue are completely dried up. But notwithstanding, the full amount of tax thus imposed, is still fully paid by the consumers, in the monopoly price of the domestic articles, which have substituted the foreign. Among the prohibited commodities, coarse cottons deserve particular notice. These are ostensibly charged 25 per cent; but the law requires that the first cost shall not be estimated at less than 25 cents the square yard. As the cheapest foreign cottons may be purchased for one fourth of that price, 100 per cent. would be the real duty charged, instead of 25 which appears on the law. What amount of revenue is now lost by the prohibitory duties on low priced European cottons, we have no grounds

to estimate; but those from India alone, formerly yielded to the treasury, about \$1,000,000 annually, the whole of which is now sacrificed, and converted into an indirect bounty, paid for the manufacture. What adds to the enormity of the evil, is, that its entire payment is drawn from the poorer class of the community, by whom goods of this quality are exclusively required. To the wealthy purchasers of the finest cottons, the cost of duty is only 25 per cent. The destruction of this branch of the India trade, by the tariff of 1816, has produced consequences, not less injurious to commerce, than to the revenue. The magnitude of this part of the evil effects, may be inferred from the following alarming fact. In 1807 fifteen ships from the port of Salem, alone were employed in the India trade; the prohibitory duties on cottons, reduced the number to two; nor are these sustained in its prosecution, so much by the home market, as by reshipments to Europe and South America, by which means the excessive duties are avoided.

When nails were charged two cents, and spikes 1 cent per pound, the average duty paid on them, into the treasury, for 1802, 3 and 4, amounted to \$70,000 a year. The rate on one of these articles is now doubled, and on the other, tripled: their prices have risen in full proportion—but the present tax being prohibitory, no part is paid to the government, but the whole to the manufacturer. From the increase of these duties, and of the population and consequent consumption of the country, since 1804, there can be no question, but the loss to the government and people, on these two inconsiderable articles alone, has been equal to \$170,000 a year, since the adoption of the present tariff.

The foregoing examples furnish fair specimens of the effects of the duties imposed on all commodities which can possibly be manufactured in the United States. Most of them it is admitted, are only partially prohibitory—but as far as they are operative in that way, to the same extent do they defraud both the treasury and the people. There is not a single duty on articles of this description, which would be increased in amount, by being reduced in rate.

Books are printed and sold in this country, at less than the first cost in England. Consequently the duty of 15 per cent. on imported books, is required neither for revenue, nor for the protection of the home manufacture. Its immediate effects, as it regards the pecuniary national loss, are inconsiderable: but no part of the tariff can produce more of ultimate injury, when compared with the very slight benefits, expected from this duty. All European works, for which there is an extensive demand, are immediately furnished to the public, by American publishers. Thus we are regularly and cheaply supplied with all the trash intended for the circulating libraries of England.—But many works of great intrinsic value, which from the nature of things, would have but few readers, cannot be profitably reprinted here, and the duty obstructs or prohibits their importation. The most striking example of this evil, is found in the difficulty with which European agricultural works can be obtained. In

no other class is more discrimination necessary, for selecting such as are valuable from the worthless mass: and none, even of the best, have fewer purchasers, or readers. We know of but three European volumes on agriculture, which have been republished in the United States, and works of this description were seldom or never imported for sale, until within the last few years. The spirit of enquiry which has lately arisen among farmers, has in some measure counteracted the prohibitory tendency of this duty. Our booksellers have imported some valuable works, and, (as might be expected) still more which are useless, and the necessary high price of all, has allowed so little profit to the importers, that we understand, no expectation remains of a repetition of the experiment. We admit that the most unreasonable price might not deter an individual from importing a work for his own use, the contents of which he knew to be valuable. But our prohibitory system has allowed so little information on this subject, that but few individuals can form a just opinion of the merits of any foreign agricultural publication, until all the expenses of its importation are incurred. The injury which may be sustained from this kind of deprivation, cannot be estimated by dollars and cents. To oppose any obstacle whatever to the progress of intellectual improvement, presents a singular feature in the policy of a free government: yet not content with the present duty of 15 per cent. on foreign books, it was proposed in 1820, by the committee of manufactures, and actually passed the House of Representatives, to increase it to 35 per cent.

For the purpose of raising the greatest possible revenue by an impost, it is necessary that the prices of foreign commodities should bear a certain proportion to the prices of the domestic produce, offered in exchange. By causing the prices of foreign commodities to exceed the limits of that proportion, the tariff injured the public revenue; and other circumstances of subsequent occurrence have increased its ill effects. Commodities generally, throughout the world, have fallen considerably in value, since 1816; and all our specific duties of course, have increased in rate, in proportion to the reduction in price of the articles, to which they are affixed. There is another and a much more important consideration. The produce of our soil has fallen still lower than manufactures and other foreign productions. The average reduction of the prices of corn, wheat and tobacco, is at least 50 per cent. and consequently, the means for the payment of the duties, are lessened in the same proportion. For any amount of tax imposed by the tariff which in 1816 could have been paid with one bushel of wheat, we have now to pay two bushels;—and the result is the same, whether the duty was imposed for revenue, or for protection; whether the farmer pays it directly to the treasury, or indirectly to the manufacturer. In this manner, both specific and *ad valorem* duties, which under different circumstances were equitable and productive, without any alteration of the statute book, may become burdensome to the people, and unproductive to the treasury.

The diminution of revenue from the impost on manufactures, was not only foreseen, but intended, by the statesmen who framed the tariff of 1816. This deficiency was expected to be more than supplied, by the increased duties on foreign luxuries. This part of the system met with no opposition: it is a plausible and popular measure to impose heavy taxes on luxuries; and statesmen of a certain description were of opinion that to restrain or prevent the importation of such articles, could not be attended with other than beneficial effects on the country. We shall consider the policy on the several grounds assumed by its advocates, and particularly, examine whether any compensation is thus afforded to the poorer class of society, in return for their suffering the heaviest evils of the duties on articles of primary necessity.

Sumptuary laws for restraining the expensive habits of a people, have been tried often enough to prove their utter inefficiency. Universal experience on this head, renders it unnecessary to examine minutely for moral effects from the high duties on wines, tea, sugar, coffee, silks, &c. Governments, which Adam Smith correctly calls the greatest of all spendthrifts, are illy calculated to teach economy to the people, and frequently, (as in the present instance,) restrain the production of wealth, by the very measures which were intended to prevent its dissipation. The people of every country are sufficiently disposed to produce and accumulate wealth unless government interferes with its expenditure. The desire to possess and enjoy luxuries, forms the only inducement to labour, after the bare means of sustenance are provided—and to this universal pursuit of luxuries, the civilized world owes its wealth and power, refinement and learning.

The total amount of revenue derived from this class of articles, has not been impaired by the last augmentation of rates, and perhaps in many cases it is increased. But their importation and consumption have been materially lessened and this has produced evils of greater magnitude, than merely paying a higher price, for more limited enjoyments.

We cannot possibly sell commodities to another country, without buying to an equal amount, nor can we buy, without an equal selling. This rule is as certain, as that payment follows purchase, for in this way only can payment be made. This exchange of commodities, is generally direct, in the trade between any two countries—but however indirect or circuitous may be the mode of exchange, the result is still the same, viz: that buying and selling are reciprocal and equal. The nation which refuses to buy any commodity, by that means prevents the sale of the same amount of its own produce. The former and present state of our trade with Madeira, will illustrate this proposition.

The Madeira Islands once furnished a considerable market for our provisions, and we took in return wine, their only means for payment. The duty on Madeira wine was raised in 1800 from 18 to 58 cents per gallon, and in 1816, to 100. The last duty almost prohibits the importation: the revenue is injured, and our exportation of provisions to Madeira has ceased, with the return cargoes which are no longer

admissible. The Islanders need our corn and flour as much as before—but we refuse to take their only product for payment, and thus surrender the market to other nations. The merchant who can both sell a cargo of corn, and buy another of wine, in one voyage, can drive from the market any competitor, who can perform only one of the two operations. While wines were moderately taxed the expense was exclusively borne by the rich consumers, who by gratifying themselves with this luxury, not only added to the revenue, but also extended our commerce, and benefitted the whole country, by causing a greater demand for our produce. By raising the duties, all these good effects have been lost. The rich by ceasing to consume, have ceased to pay that part of the tax to which they were subjected, and now only share the evils produced in common with the poorest individuals of the community.

If one nation could profit by the experience of another, our statesmen might receive a salutary lesson on this subject from England, whose system they have so much imitated. England imported timber and iron from Norway and Sweden, to the annual amount of more than \$3,500,000, and made the payment, by selling the same amount of her manufactures. By imposing heavy duties on timber and iron from the Baltic, the importation ceased, and these articles were supplied from the British dominions, though of worse quality, and at higher prices. The object of the increased duties, was to prohibit importation: but they had also the effect of as completely stopping the exportation of British manufactures to Norway and Sweden, as if those countries had adopted prohibitory measures for the purpose. This state of things continues to this time, and furnishes a remarkable example of the universal truth—that a nation which will not buy, cannot sell.

It may perhaps be thought that a trade with any country, which is carried on by purchasing commodities with specie, furnishes a contradiction to the alleged reciprocity of buying and selling. Only let gold and silver be regarded as commodities themselves, and this difficulty will disappear. To those who consider the precious metals, as something very different from commodities, as satisfactory, though not so concise a solution can be furnished. When it is stated that every purchase is accompanied by a sale of similar amount, we do not mean that both are necessarily made at the same time, nor between the same parties. If a merchant carries dollars from Boston to Canton, and brings back the amount in tea and silks, the transaction itself shews, that he had obtained that amount of specie, by some previous sale, to another country capable of furnishing it. Under other circumstances, the order of time might be reversed, but with the same result. Suppose an American merchant to buy a cargo of European goods on a credit: a dozen sales of the same goods might possibly take place, before the original debts discharged—but whenever the payment is made, it can only be done with an equal amount of American produce, or its value in money obtained from some other foreign purchaser.

We are too slightly acquainted with the de-

tails of our commerce, to attempt the enumeration of the injuries which it has sustained from our prohibitory system. A particular statement might confirm, but could not possibly weaken this general proposition—that, so far as the tariff has diminished importation, (which was its leading object,) to the same extent has it diminished exportation; and the amount of both makes the national commercial loss. The individual losses of the commercial interest can neither be estimated nor remedied.

The most important of all the evils caused by the tariff, are inflicted on agriculture. The whole surplus product of the soil, is either directly or indirectly exchanged for the products of manufactures and commerce. Every farmer will at once admit that much the greater part of his produce, is thus appropriated; and a proper consideration of the subject, will shew, that the rule admits of no exception. If a farmer with his profits, buys land, or increases his stock; he in this way only affords to others the means of making the ultimate exchange: he exchanges his crops for the commodities of the merchant and manufacturer, through a third person, whose intervention may delay, but cannot prevent this certain result. According to the estimate of the well-informed author of "The Examination of the New Tariff," the average rate of duties now imposed is 35 per cent. and of course, imported merchandise, and manufactures requiring protection, are as much enhanced in price. Supposing the price of wheat to have continued at \$1 per bushel, 135 bushels would now be required to pay for the same commodities, which 100 bushels would buy, but for our restrictions on trade. Though the nominal value of wheat is 100 cents, its exchangeable or real value is only 73 cents per bushel. Therefore the enhancement in price of the products of commerce and manufactures, is actually an equal diminution of the value of those of agriculture. This enormous per centage on the whole surplus product of the soil, is the share which agriculture pays of the cost of the tariff. Was importation not lessened, and was the whole cost of duty paid into the treasury, it would be an equal and impartial, though still a most burdensome tax. But when it is considered what trivial benefit accrues to the revenue, from many of the heaviest charges, we must suppose that high duties possess some other incalculable value, to compensate for the mass of evils which they produce.

The reduction of all prohibitory or unproductive duties to the rates of 1790, and of all others to such rates as would yield the greatest amount of revenue, would increase the treasury receipts, and at the same time, relieve the people of half the present burden of taxation—employment would be furnished to commerce, and new markets would be opened, and the existing demand increased, for the products of agriculture. But this withdrawal of legislative protection would put an end to all the hated manufactures, which have been forced into existence, and sustained by the ill-judged policy of government. This obstacle to reduction, we shall treat with the consideration which its importance merits.

Could we be persuaded that the legal establishment of manufactures, is an object worth any national sacrifice for either its attainment or preservation—still it would be necessary to compare the expected benefits, with their probable cost. The failure of every attempt which has hitherto been made, to adjust duties to the rate sufficient for protection, shews the impossibility of even approaching the amount of national loss, which would be required for the complete establishment of the system.

The rates recommended by Mr. Hamilton were adopted with but little alteration, by the Congress of 1790; and his report shews that he considered them sufficiently high, for the protection of most necessary manufactures. Their average rate was only 73 per cent, and the event proved, that this tariff was altogether calculated for revenue, and therefore afford no protection.

The duties fixed by the present tariff, average 35 per cent. or more than four times the rates of 1790. This augmentation, so far from effecting its avowed object, was loudly denounced by the manufacturers, as "totally inadequate," and they demanded further protection, with more clamour and determination than they have ever before evinced. More than forty memorials from various manufacturing associations, were laid before the next session of congress, which together with their numerous subsequent publications, agree as to the insufficiency of all the measures which were intended for their benefit. After all the evils which have been brought upon the people by the tariff of 1816, they are told by the Chairman of the Committee of manufactures, that "all attempts to promote our own manufactures have hitherto failed." Accordingly, a new tariff, deemed by that committee, effectual for the purpose, was presented to congress in 1820, and barely failed of becoming a law. There was some limit to the forbearance or apathy of the people—and they roused themselves in time to repel this last and most dangerous invasion of their rights. But however great the injury which would have resulted to the nation, from the enactment of the proposed tariff, experience warrants the doubt, whether even that would have effected its sole object, the establishment of manufactures. When we war against nature, we can expect nothing but defeat.

Our restrictive system has succeeded in establishing but few manufactures. The failure has been most striking of the general establishment, which, according to its advocates, would "correct the balance of trade," render us independent "of foreign supply, create an abundant home market for the products of our soil," and produce other national benefits, equally important, and equally solid. But these advantages, (the reality of which it is not necessary now to contest,) were not promised as effects of a partial establishment; and the warmest friends of the prohibitory system, are now loudst in deploring the failure of their experiment, and the total absence of its expected good effects. The congress and the people have decided against the consummation of the system; and the only question which remains, as to the public weal, is this:—Shall we re-

trace our steps, and abolish protecting duties—or abide by the present tariff, which the friends of restriction, admit to have produced none of its benefits, and which the enemies of that system, charge with furnishing its evils in abundance?

But the public interests, in whatever aspect they may be regarded, will not oppose as serious obstacles to the reduction of duties, as the private interests of the manufacturers. The measures would be denounced as a violation of the rights of property. Certainly the rights of property are involved in this question—but they were violated when a portion of the people's income was vested by law, in a privileged class, and this violation is repeated in the purchase of every commodity, protected by the tariff. We hold the rights of property as most sacred. But their violation will (in this respect) cease, and not be commenced, by the resumption of these exclusive privileges. The true theory of our constitution is utterly opposed to the sacrifice of the interests of the great body of the people, for the unjust gain of a few.

If however, the indirect bounties now enjoyed by the manufacturers, are treated with all the respect due to property, still their amount (measured by their nett profit) is too inconsiderable, to justly impede measures calculated to promote the national prosperity. The whole object and effect of protecting duties, is simply to induce individuals to pursue unprofitable employments, by engaging that the whole of the inevitable loss shall be sustained by the people. The difference in price between the protected domestic commodities, and of similar foreign articles, free of duty, is clearly a loss to the consumers. But the measure of their loss is very far from being the measure of the manufacturer's profit. Though they may obtain double the European price for their fabrics, yet that amount is fully required to overcome the high price of labour and other disadvantages, under which their business is carried on. In other words—they are paid this advance to compensate the actual losses which are of necessity incurred, and the profits which they obtain are as small, or (if their own statements are correct,) even less, than those of the oppressed farmers, merchants and mechanics. The whole annual sacrifice of the people of the United States, for the sole purpose of protecting manufactures, is probably not less than 30 millions of dollars. A miserable pittance out of this immense sum, constitutes the profit of the favoured class, and the residue is as completely lost to the nation, as if annually thrown into the sea.

The loss which the manufacturers would suffer by the abolition of protecting duties, would be the value of their machinery, a part of their other fixed capital, and the inconveniences which are incidental to every change of employment. The whole would not amount to the loss annually sustained by the nation, for their protection. Scarcely any important national measure has ever been adopted whether beneficial or otherwise, which did not destroy the value of a greater amount of property, belonging to some part of the community; nor has this unavoidable circumstance

been allowed, in other cases, to obstruct the public good. It is a slight evil, inseparable from the blessings of society and good government, that the interest of a minority, must yield to that of the nation. But if the interest of the manufacturers are held so sacred, as to outweigh those of the whole community, it will be far better for the government to purchase the surrender of their privileges, at their full value, than to continue to lose dollars, that this class may be enabled to gain cents. Highly objectionable as are all pension and pauper laws, yet there are many reasons for preferring that the national bounty should be dispensed as alms, rather than to be claimed as a right.

PETITION, &c.

To the Senate and House of Representatives of the United States, in Congress assembled, the petition of the Agricultural Societies of Prince George, Sussex, Surry, Petersburg, Dinwiddie, Isle of Wight, and Nottoway respectfully sheweth:

That we conceive the only object of duties on importation according to both the rights and interests of the good people of these United States, ought to be exclusively the increase of the public revenue.

That, while it continues the policy of government to derive from that source the funds requisite for the public services, your petitioners are altogether willing to contribute to the utmost of their means; but they pray relief from all such duties, as, by their excessive rate, have either destroyed or diminished any portion of the revenue.

That the tariff of 1816 has so much increased the price of foreign commodities as greatly to diminish importation, and in many cases, completely to preclude it—thus augmenting the public burdens, when the government is, at the same time, and to the same extent, deprived of the benefits, which would otherwise be derived.

That justice and good policy alike require that wealth should be distributed among the different interests of the community, in proportion to their industry and merit: this natural and equitable division of property is obstructed by the existing prohibitory duties, which cause the several classes to be enriched or impoverished accordingly as they are favored or oppressed by monopolies and restrictions.

That whenever governments thus assume to direct in what manner private persons shall employ their capital and industry, national as well as private loss, is the inevitable consequence. The increase of national wealth is the total amount of profit derived from the capital and industry of all the individuals composing the nation. But every individual knows best what would be his most profitable employment, and no change in its direction can possibly be caused by government, except to pursue less profitable than would be adopted without the coercion; restrictions, bounties, or monopolies. The legal establishment, (by means of protecting duties) on payments which can do no other wise exist, does not diminish the losses attending the pursuits; but merely shifts

them from the undertaker, to be imposed with augmented weight, on the really productive industry of the country.

That your petitioners humbly conceive that the Federal constitution vests your honorable body with no power to impose taxes and burdens on some states, classes, or individuals, solely for the emolument of other states, classes, or individuals: nor to grant exclusive privileges to the commercial, mined, manufacturing, or any other minor, and separate interest which must necessarily be at the cost, and to the injury of the great body of the people.

That the legal creation and support of distinct bodies, having interests separate from, and opposed to those of the people, and enabling them to accumulate wealth and political power by means of charters, monopolies, or other exclusive privileges, is subversive of that equality of rights on which our freedom is founded. Such privileged orders must become aristocratic bodies sufficiently powerful to control the public voice, and yet always subservient to the administration, on the tenure of whose will and favour, depends the continuance of factitious importance.

That a reduction of the rates of the tariff of duties adopted in 1816, would increase the receipts of the treasury, relieve agriculture and commerce from restraints the most injurious, and, by restoring freedom to all the pursuits of industry, offer the certain means for promoting the prosperity of our country.

Therefore we pray of your honorable body that those existing duties which are so excessive in rate as to prohibit importation, and are consequently, totally unproductive of revenue, together with all such as are only partially prohibitory, may be reduced to such rates as may be deemed best calculated to augment the receipts of the public treasury:

RICHARD FIELD President,
of the General meeting of
Delegates.
EDMUND RUFFIN Secretary.

FOR THE AMERICAN FARMER.
PEACH-BLOSSOM, (Talbot-County,)
December 22d, 1821. }

SIR,

The promise made to you, of communicating the mode of cultivation, by which I had so uncommon a product of Corn from an acre of land,* in the year 1820, I fulfil with pleasure; and must acknowledge candidly that it was delayed until entirely forgotten. A few days since I was reminded of it by a friend.

In the autumn of 1819, I turned in, about 8 or 9 inches deep, a remarkably heavy crop of weeds and wheat stubble—as early as practicable. In March following the same was cross-ploughed equally deep—in April the same—and a fourth time in the early part of May, each spring ploughing being succeeded by the Drag Harrow and Roller, so as to pulverise the earth completely. Between the 15th and 20th of May, the ground was listed, east and west, with a small Connecticut Plough, allowing no walks or middles between the lists, but so close as to leave only about 21 inches from the top of 1st bus. 7 gallons, 1 quart. See Am. Far. v. 3, n. 8.

of one list or ridge, to that of the next—it was immediately *crossed*, north and south, at the distance of four and a half feet; and the corn, (which had been previously soaked in manure-water, and rolled in plaster of Paris,) dropped at the intersections of the lists and crossings, and covered with a harrow. As soon as the corn got cleverly to growing, it was thinned to two stocks in a hill, as it is called—and I had no trouble in re-planting. When it became stout enough, 6 or 8 inches high, it was bared, that is, the earth was thrown from it; but immediately another plough followed, throwing the earth back again, after which I proceeded to plough out, and never used that implement again in its cultivation. You will observe, that this Corn was worked one way only, north and south, and that consequently it was necessary to use the hoe and the harrow pretty freely, to keep the ground loose and sufficiently clean for wheat.

The land on which this crop was made, is a light, black loam, an old Tobacoco lot, (in whose immediate vicinity formerly stood negro quarters, stables, &c.) and so very rich, that manure was deemed superfluous. Candour compels me to say, that all this previous preparation for a crop, to which, together with an uncommonly propitious season, I in a great measure ascribe my success, was not made with a view to a crop of Corn; but, in reality to a crop of Tobacoco. It however satisfies me of the absolute necessity of a complete pulverization of the soil, to ensure a good crop of Corn.

With very great respect,
I am, sir, yours, &c.
THOMAS P. BENNETT.

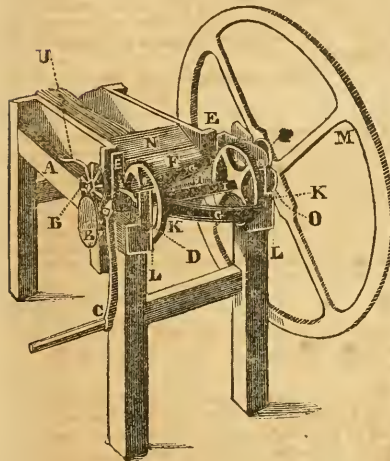
John S. Skinner, Esq.

CULTIVATION OF THE LOCUST.
Baltimore 12 mo. 24, 1821.
Observing some questions asked in thy valuable paper respecting the manner of cultivating the Locust tree, I will state the experience of a neighbour of mine as detailed by him to me. He procured about a quart of the seed from such trees as grew about this city, and in the spring prepared a piece of ground in the corner of a garden: placed the seed in a vessel and poured boiling water on them (to release the germ from its prison, without injuring it) and immediately planted them. They all sprouted as soon as a grain of corn would have done; some of them grew 10 feet high the first year. There is one in the garden of Geo. Elliott, Patapsco mills which treated in the same manner grew 10 feet high the first season. It is stated that many of those which he planted are now fine trees, and may be seen three and a quarter miles on the Falls road, together with some planted at the same time by James Elliott, on the same road and adjoining farm. The germ of the Locust is enclosed in a very hard and durable shell and will remain some years in the ground without the power of breaking its prison walls unless helped by scalding or exposed to alternate frosts and thaws.
As many of the Locust seed as thou wouldst wish may be obtained in half an hour under the Locust trees round the garden fence of Col. Howard adjoining the Park.

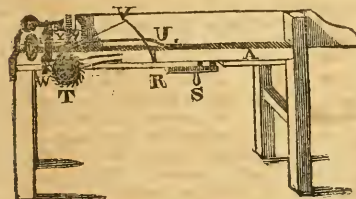
[In Number 38 of this volume, we made mention of a Straw Cutter, recently constructed by Jonathan Eastman, of Baltimore; which, so far as it has yet been tried, appears to be a substantial and effective machine; and that our readers may form a correct idea of this Chaffer, we now give two views of it and the parts, with a detailed reference to the performance and position of these; for the price, see advertisement on our last page.]

EASTMAN'S Straw Cutter or Chaffer.

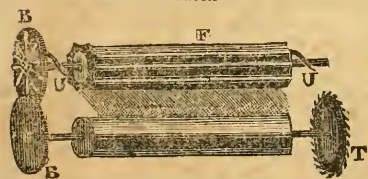
In Perspective.



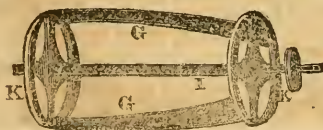
Side view, excluding the Arms and Rim of the balance wheel.



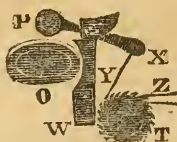
Feeding rollers and Springs; the rag and star wheels.



Cylinder shaft and wheels, cutting knives and Cam.



Feeding Post and hand, Oval Cam, Friction Roller Rag Wheel, &c.



The frame of this machine, as now made, is about four feet long and 15 inches wide in the clear; it consists of 4 posts and 4 rails, made of suitable scantling, say 3 inches by 4; the back posts are about 3 feet 3 inches high, they rise some inches above the side rails to support the sides of the box; the front posts are framed into the side rails A, which pass over and project in front of them something more than one inch, so as to receive a wrought-iron band L, which is not only intended to strengthen the rail, but to receive and confine two stay blocks B, that are half as wide as the top of the rails, and in which the main cylinder shaft I, turns; these blocks are secured in their places by screws, that pass through the top of the bands LL, for that purpose; the upper blocks are generally made of cast-iron, and the lower ones of wood with a brass bed for the shaft I, to turn on. At one end of the main cylinder shaft there is a crank or handle C, by which the operator puts the machine in motion, and upon the other end of this shaft there is a balance wheel M; each of these are on the outside of the frame. On the same shaft, but inside of the rails and close to the sides, there are placed cast-iron cylinder wheels KK, of about ten inches diameter; and upon the periphery of these wheels, two knives GG are bolted, which diverging about 3 or 4 inches from a straight line, stretch in a spiral course from one wheel to the other, and are placed at opposite points on the circumference of the wheels KK; these knives GG, are about 15 inches long, 2 1/2 to 3 inches wide, 3/8ths of an inch thick on the back, drawn to an edge by a true slant on both sides. By means of the stay blocks, bands, and screws, the main cylinder shaft and wheels carrying the knives, may be moved closer to the straw, or be withdrawn at pleasure. The knives of this machine act against a steel bed shear H, which is placed back of the cylinder wheels and a little below a horizontal line from their centres; the bed shear may be made stationary, or be set upon a spring. Close to this bed shear, and immediately back of it, the bottom feeding roller is placed; this roller is about 4 inches diameter, smooth and of cast-iron, or it is of wood, when a leather feeding apron about 2 1/2 feet long is supplied, that passes around this and another wooden roller, thus forming a portion of the bottom of the box, the rest being a sliding board—this apron, as it revolves, carries short forage, such as corn-husks, readily between and through the feeding rollers—the hindmost roller around which it passes, is attached to the bottom of the side rails, by sliding blocks R—each block has a seat cut on its upper side, to receive the journal or axis of the roller, and there is a long mortice cut through the block, so that it can slide on the neck of a screw S; these screws enter the bottom of the side rails through these mortices, and have cheeks to support the sliding blocks, which, with the roller on them, may be carried far enough back to stretch the apron, and be there fastened by the screws—this contrivance might be placed on the sides of the rails A, instead of the bottoms.

The feeding rollers F have, in all cases, an iron shaft through their centres, extending something more than an inch outside of the frame, on both sides. There is a star wheel B, on one end of each of these shafts, on that side of the machine by which the operator stands; and on the other end of the bottom feeding roller shaft, there is a rag wheel T, of cast iron, of about 5 inches diameter; this wheel is put in motion, by what is termed a feeding lever X, that is made of cast iron, is about ten inches long, and plays vertically upon a horizontal pivot, that is

put through it and the feeding post W, its vertical range being limited by a pin that is put into either of several small holes, which are drilled in a group, near to the post W, which is of cast-iron, bolted at the bottom to the outside of the frame of the box; and rising about 6 or 8 inches, the top then turns backwards, towards, or over the rag wheel T, a sufficient length to contain that group of holes, into either of which the pin may be put so as to circumscribe or enlarge the play of the levers; this regulates the length of straw which shall be presented at each feeding movement.

On that end of the lever which is over the rag-wheel, a feeding hand Y is fixed, which may pass as it rises, over one or more notches on the rim of that wheel before it catches; then, as this end of the lever descends, the feeding hand forces the rag-wheel T to move, and consequently the bottom and top feeding rollers F to revolve, as it is fastened on one end of the bottom roller shaft, and as the other ends of the shafts of both rollers are coupled by star-wheels BB. On the front or longest and heaviest end of the feeding lever X, there is a small friction roller P, of from 2 to 4 inches diameter; and directly under it, on the main cylinder shaft, there is a cast-iron, oval Cam, or plate O, fitted to, or cast on the inside of the balance wheel M; and as this oval Cam revolves under the friction roller P, it raises that roller and one arm or end of the lever X, at each semi-revolution—whilst, at the same time, it depresses the other arm and feeding hand Y—this hand catching in the notches on the rag-wheel, as this arm descends, turns the feeding rollers, as before intimated, and by these movements the straw or forage is sent forward, after the passage of one knife, ready to be cut by the other—The knives CC and Cam O, being rightly placed, the feeding rollers will be at rest, whilst either knife is cutting, and after one knife has cut off a length of straw, more will be advanced before the other knife gets round.

To keep the feeding lever X and hand Y from bounding, as they otherwise would, when the machine is moved quickly, there is a weak spring V placed back of the rag-wheel T, in a suitable position; and from which a chord, wire or small chain, is passed to the feeding hand, so that as it draws this hand upwards on the notches of the rag wheel—it raises that arm of the lever to which the hand is attached, whilst it depresses the other arm, and thus prevents any useless or injurious movement being made by the hand, lever or friction roller.

The box part of this machine is fastened with screws to the inside of the frame; it is stayed at one end by the hind posts, above the side rails, and at the other end by two short front posts EE, which are framed into the top of the side rails A, just above the bottom front roller. These short posts have a channel, or slit cut into them from the tops, for the journals of the upper roller F to play in, allowing it to rise or settle, so as to suit itself to the depth of forage that may be in the box, and suffering it to rise out of gear at the star-wheels BB, and cease to revolve, whenever there is a greater depth of forage in the box than the machine is calculated to cut.

An extra pressure is put upon the upper roller F, by means of two steel springs UU, one on each side, placed on the top of the side rails A, and over the journals of this roller: the pressure is given by screw bolts, that pass through the springs UU, and side rails A; the length of the springs is immaterial, they are made at present twenty inches long, with a sufficient bend towards one end. The star wheels BB, on the feeding rollers F, Mr. Eastman claims as his own construction, and those which work best have ten cogs of this shape and size



being in diameter six inches—the cogs are half an inch thick, open on one side, and cast on a smooth

solid plate, or wheel of iron of sufficient thickness to support them.

The several principles for which Mr. Eastman claims a patent in the above described machine, are, 1st. The feeding machinery, including what he calls the oval cam O; the friction roller P; feeding lever N, and post W; star wheels BH, as described; and the manner of applying the pressure of springs UU, on the upper roller F.

2dly The cutting machinery; embracing the shape of his knives GG, and their angle on the wheels; the size and construction of the cylinder wheels KK, on which the knives are fixed; and particularly the manner in which the shaft or axis is adjusted on the frame, so as to permit it, with the stay blocks D, wheel KK, and knives GG, to be placed nearer to the wheel shear H, or be withdrawn at pleasure; as well as the form and use of the bands LL, and screws which confine the stay blocks D; and,

3dly The general construction and proportions of the whole machine; these being materially different from and superior as he believes to those of any heretofore employed for the same purpose; upon which grounds he claims a patent for the general construction and proportions of the machine, including the specified parts.

There is a board V placed towards the front of the box, and above the straw, to keep this from passing over the upper roller, and there are two little stays Z, which catch on the rag wheel to prevent a counter movement of the feeding rollers—by this means the straw is firmly held until cut by the knives.

The following certificate was given to Mr. Eastman by a Farmer of Baltimore County, and as it expresses his opinion of the "Cylinder Chaffer," after having used it, on his farm, we have thought proper to publish it, along with the above description.

Edit. Am. Farmer.

I can certify, that I have made a sufficient trial of Mr. Eastman's Cylinder Straw Cutting Machine, to satisfy myself with respect to its utility. I have cut eighty bushels of straw with it—19 of which were cut in 20 minutes. I think the machine capable of cutting 60 bushels per hour, if well managed—The machine is very simple, and I think more completely adapted to the use for which it is intended, than any other that I have ever seen.

CHARLES JONES.

Baltimore County, 1st Nov. 1821.

Influence of TREES on our HEALTH.

FOR THE AMERICAN FARMER.
TO THOMAS LAW, ESQ.

Your suggestions made some time ago, and more recently, that certain Trees were wholesome, and certain others prejudicial to health, were to me, entirely new in print; though the particular odour of trees, and its effects upon my system, had many years ago attracted my attention and observation. Some there are that produce upon my olfactory nerves an agreeable sensation, such as the American poplar, sassafras, and more particularly the long leaved yellow pine and the red cedar. The smell is not only pleasant but always seems refreshing. Such I have been induced to believe are desirable to place near the house, on account of health: and I have, for many years, thought that the contiguity of pine wood near dwellings, caused those houses to be more healthy than where they were absent. under similar circumstances in other respects.

On the other hand there are trees which are offensive in their odour, such as the Weeping

Willow, under which you will always find stinking leaves and dead twigs. The contiguity of those trees to dwellings, had led me to think, from frequent observation, occasioned sickly families. I know no place that I consider healthy, where those old-fashioned, and, with some, favourite trees, stand near the house.

The common locust I have thought healthy, and the Lombardy Poplar I cannot form an opinion respecting.

Your observation made some time ago, does not seem to have attracted the attention of any chemist to experiments upon the subject. Do you know none in this country who possess the qualification, the apparatus necessary, and the disposition to make experiments to gratify our useful curiosity, whom you can personally request to institute experiments? If not, apply to Sir H. Davy, who I have no doubt would undertake the business? It seems agreed among chemists, that trees absorb or take up impure air (carbonic acid gas) and give off pure air (oxygen gas,) during the day; and I think the present opinion is, that this operation is reversed during the night. Then may not some trees require more impure air, and afford more pure air than others?

Some modern physicians ingeniously maintain that consumption of the lungs cannot be cured by any application to the skin, or by means of any medicine taken into the stomach, and that it can be cured, but only by inhalation into the lungs, of air impregnated or saturated with certain things, and these things are chiefly resinous substances. Does not the odour which the pine gives off, contain a useful preparation of this substance?

Another suggestion has been made by Mr. Meigs, of your city, that appears to me, very just and very useful. It is, that we should preserve our trees, if it is only for the purpose of tracing the rains.

That single trees or small clumps, possess this power, I think questionable; but that bodies of wood, and not very large either, possess this power, from many years observation, I am fully satisfied. Besides their absorption of moisture by the leaves, and consequent attraction for it, there are other philosophical reasons that might be given for the truth of Mr. Meigs' opinion.

Dec. 20, 1821.

* I would invite my friend Dr. Mease to attend on this subject.

—O—

RABBIT WARRENS, how should they be formed, &c. &c.

FOR THE AMERICAN FARMER.

Sir—I have been induced to believe, that a well stocked warren, would conduce much to the comfort of the farmer by supplying his table with a savory dish at little expense; but am at a loss as to the best method of constructing the inclosure, covering, &c.—an article on this subject, pointing out the best plan of forming a warren on the combined principles of utility, and economy, suited to the ordinary situation of our agriculturists, with some account of the habits of the rabbit, and directions for their care and treatment, would I think

oblige many of your subscribers as well as your friend,
A. B.

A VALUABLE ACQUISITION.

The Aracacha,

FROM SOUTH AMERICA.

Laguaira, Nov. 29, 1821.

Dear Sir—I send you a small box of the Aracacha, and would write to you fully on the subject, but that Mr. Chester is just on the point of embarking. I refer you however to my friend, Mr. Oliver, who can give you an extract from a letter I have written to him on the subject, and which you may insert in the American Farmer.

I am dear sir, Yours, &c.

J. D'EVEREUX.

We trust that *this is only the commencement of mutual and numerous interchanges of good offices and valuable productions between the agriculturists of the two Americas*—every thing invites to the cultivation of the best understanding between them—We are perfectly aware of General D'Evereux's attachment to this country, and in the name of his agricultural friends, we tender him their thanks for this proof of his active and philanthropic disposition, which leads him to seize all occasions to do good.

Editor Am. Farmer.

Extract of a letter from General D'Evereux, to Robert Oliver, Esq. on the subject of the vegetable called the Aracacha.

The late Dr. Palacio Forxar, an eminent physician and naturalist of this country, in his MS. Journal of Travels through the kingdom of New Grenada, gives the following account of the Aracacha, or Apio, as it is more commonly called.

"According to Don Ignacio Huraña, who is the proprietor of the Farm of Tequendama, Aracacha is the root of a plant of the umbelliferous tribe, and bears a great resemblance to celery. The root is yellow, sometimes violet: in shape it is like a carrot: its flavor is very delicious; it is brought to table like potatoes, and a delicate sort of paste is made with it, which is baked into cakes; and like potatoes, a powder is made from it, which is used for starch, and is much esteemed. This plant grows in temperate and even in cold climates, and its culture is as easy and simple as that of celery."

Its culture may more properly be compared to that of potatoes, for each root is cut into small parts, and each part produces a plant, provided, as in cutting potatoes, an eye or bud be left to each. It is planted in March and fit for use in October. It seems to prefer a temperate and mountainous country: there is a ridge near Gaycaca, on the road from Valencia to Caracas, named the *Ceno de Apio*, from the abundance of this root produced there. If left some time in the ground, it attains a considerable size. It would probably be expedient to introduce it, in the first instance, in the Carolinas, whence it might by degrees, be transplanted northwards.

Mr. Vargas, in his account of the Aracacha, published in London, in The Annals of Botany, Number 2, page 400, says it is cooked in the same manner as

potatoes, and that it thrives best where the medium heat is between 58 and 60 degrees of Fahrenheit's scale—See Doctor Mease's Archives, volume 2, page 298—or, American Farmer, volume 3, page 77, for a more particular description of this vegetable—the culture and culinary importance and preparation of it, &c. &c. *Edit. Am. Farmer.*

Editorial Correspondence.

VEGETABLE MARROW; BENE, POPPY AND COLZAT OILS.

*Washington, D. of Representatives,
Dec. 22, 1821.*

Sir—The vegetable marrow, the seed of which I lately sent you, was brought to England either from New Holland or New Zealand. I have forgotten which.

On looking over your paper of yesterday, I perceived some notice of the use and excellence of the Bene-Oil. During a late visit to France, I was surprised to find, that the cultivation of the Oleaginous seeds was considered to be the most profitable employment of Agricultural capital. The Colzat and the common Poppy, are the most productive. I expect to receive some of the seed, of the former, and will send you a portion of it. The oils made from these seeds are in general use for the table when perfectly fresh; also for painting and for lamps burning with less smoke, they give a much clearer and brighter light than whale oil. The Bene or Sesamum-will, I believe, produce more oil than any of the plants cultivated for that purpose in France, with the valuable quality of keeping sweet for years. This plant will not succeed so well, however, in a northern climate, whereas the Colzat and Poppy might be cultivated in the northern, eastern and western states.

Adverting to a letter from Colonel Gibbs, on the dry rot in timber—it may be useful to remark, that the method he mentions of salting the timber and planks of ships, after being for some time practised in the British dock-yard, has been lately abandoned. The English builders now use the tar, which is extracted from pit coal by distillation. The timber and planks are paved over with this substance; and I was assured by the builders at Chatham, that their experience was in favour of its efficacy in preserving wood from the dry rot.

Your obedient servant,

J. R. P.

WHITE LUPIN.

Washington, Dec. 30th, 1821.

Dear Sir,—Supposing the inclosed letter from your valuable correspondent, S. W. Pomeroy, Esq. will be both useful and amusing to your readers, I give you leave (as I am sure he cannot have any objections) to publish it.

It is an answer to some inquiries of mine, on the mode of culture, and the value of the white lupin, you were good enough to present me with.

From the information contained in this letter, it will appear that it is a more agreeable than useful vegetable, and in my part of the world, (the rich low lands of North Carolina) we seldom think of manuring, especially by turning in a luxuriant field of vines or vegetables, which

we would consider little less than murder, or burying alive.

I am with great respect,
Your friend and servant,
L. SAWYER.

Brighton, 25th Dec. 1821.

Sir,—I am honoured with yours of 18th inst. and regret that you will be disappointed in your estimation of the white lupin as a *table delicacy*. I know of no use they can be put to in this country of plenty, except for manure, unless it be to ornament a flower border, in which the ladies think them deserving a prominent place.

The lupin, on which the "ancient philosophers" subsisted, may have been a variety essentially different; but if these were the same that "Diogenes lived on," by tasting them, we may easily account for his *bring content with seven a day*—however, from the description some writers give of the Lacedemonian *black broth*, compared with which, they may not be unpalatable; they probably may have formed part of the composition of that patriotic dish.

I have been told that the poorest class of labourers in Faval, when they cannot procure Indian meal, soak lupins in salt water to divest them of the hull, and take out as much of the bitterness as possible, to make a *soup* which is a substitute for peas; but if a hearty labourer can procure a *peck of corn a week*, with a little rancid oil, he will never have recourse to the lupin for food, and be content if he tastes meat but once a month.

Although the lupin will be no addition to the valuable esculents which your fertile soil can produce, if we have any in this section that may be desirable, be assured, sir, it will afford me pleasure to forward them—and that

I am respectfully,

Your obt. serv't.

S. W. POMEROY.

For the American Farmer.

TO YOUNG HOUSE-KEEPERS.

Curing of Beef.

I have seen several Recipes in the American Farmer, for curing beef; some of which are no doubt very good, but they do not communicate enough.

There may be many things in this necessary art, unknown to a family for the greater part of their lives, which it would be very useful to know the first year—I have, therefore, taken the liberty to send to the Editor of the Farmer, a plan that I think both theory and experience will sanction.

Get beef recently from the grass, and raised not very far from the market—for driving always inflames the vessels and melts down the fat, as well as hardens the flesh. The fat should be white and of good thickness, under the skin as well as interspersed throughout the flesh—a large kidney alone is not sufficient proof of good fat beef. Beef should be neither very young nor old—Oxen are to be preferred—Spayed heifers, although very tender and fat,

and flavoured—Cows are generally too small, and often pregnant—Bulls are said to be the most juicy, but even at two years of age, they require a first rate set of teeth to despatch a stake in ordinary time.

Let this beef (if in the fall) hang a few days in quarters, which is just as necessary to tender the boiling pieces as the roasting pieces—then cut it up and have the whole rinsed, drained and well sprinkled with salt. In the mean time have a pickle made with cold water, sufficiently strong to bear an egg—with a stir or two, cold water in 48 hours, will dissolve all the salt as well as hot water, and much trouble saved thereby.

For every quarter of beef put in three ounces of salt petre—after draining your thick pieces, put them into this pickle—let them be covered with it, and if possible, fill the cask—In a week, turn them upside down, and let them remain three weeks, when the smallest may be used. The thin pieces that were left out, such as flanks and plates, should be rubbed every third day with salt and salt petre, which will bring them in for use sooner than the pickle. If you have much beef or expect to be 3 or 4 months, using what you have, you must have another sort of pickle for a part of it, this is made simply by adding 1 lb. of sugar, for every 100 lbs. of Beef; to the former prescription of salt, and salt petre—by the sugar being added, you will find that your beef will not be cured in a less time than two months, but as a compensation it will preserve the beef nice for four months, when the other pickle will be found strong, and the beef rancid. Pocock's pickle is a very good one for this purpose, and unless the beef has been salted in tins before, it will be found too weak for our climate. By the above plan the young Housekeeper can have a regular succession of nice Beef, the whole winter, first his thin corned pieces, then his common pickled, and finally his sugar pickled.

S. V. S.

JOHN S. SKINNER, Esq.

THE FARMER.

BALTIMORE, FRIDAY, JANUARY 4, 1821.

PRICES CURRENT.

The navigation of this city is at present obstructed with ice, consequently there are but few sales of produce now making, and these at retail.—In the present dull state of commerce the prices of this week may be considered as fairly given in our last quotations.—Any material alterations shall, however, be noticed as soon as they may occur.

Straw Cutters or Chaffers.

The subscriber informs the public that he has on hand, several of Hotchkiss' Patent Straw-Cutting Machines, the price from \$20 to \$45, and all on the improved plan. He will sell them for good acceptances in this city, on six months credit.

He has for sale, for cash only, a few of his patent cylinder Straw Cutters or Chaffers, the price \$45; or if supplied with a leather feeding apron, \$50. These machines are particularly adapted to the cutting of tops, stalks, and husks, of corn; and all other kinds of long or short forage, whether straight or tangled, may be cut with one of them easily at the rate of 60 to 80 bushels per hour—and as it respects simplicity and durability of construction, and ease with which they operate, I have reason to believe they have never been equalled.

JONATHAN S. EASTMAN.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua est bona norint
"Agricolae"
Vino

VOL. III

BALTIMORE, FRIDAY, JANUARY 11, 1822.

NUM. 42.

AGRICULTURE.

[Communicated for the American Farmer.]

ADDRESS,

Delivered to the "FARMERS' SOCIETY"
of Lenoir District, S. Carolina, by Dr.
JOHN S. BELLINGER, President thereof

Who remarks on the excellence of the Pine Lands of that District; the general importance of Draining; the modes of cultivating Cotton and Rice; the value of Pumpkins as food for horses; the advantages of Drill Culture to Winter Grain; the early maturity of Sweet Potatoes, raised from whole roots; the best times to sow different crops; the importance of selecting the best seed; the expediency of cultivating Orchards; the practicability of making good Domestic Wine; the usefulness of Cultivated Grasses, especially the Guinea Grass; the benefits of improving the breeds of Live Stock; the effects of different Manures and means of increasing them; the propriety of Deep ploughing, and value of fine-till; the great excellence of Small Ploughs and particularly the Shovel plough; the fitness of Oxen and Mules, to supersede the draught horse, and the many blessings which flow from the establishment of Agricultural Societies.

Gentlemen—

I make you no apology, for the many inaccuracies which I am fully sensible will be found in the few observations I have to offer to your consideration, upon the important subject, of our attempt to improve the Agriculture of our district; in compliance with the expressed wish of my friends at the organization of our Society in August last: because, I hope you will receive them as a few hints thrown out to excite your attention; and as an earnest of my determination, to promote the objects of our association, to the utmost of my ability. The progress of the art of Agriculture has so steadily advanced, not only in Europe, but in our own country, by the formation of Agricultural Associations, that it appears to be almost useless to say much upon their utility, as it would be by long arguments to prove known truths in any branch of science. I shall therefore, confine myself to a few remarks, which apply peculiarly to our district. Until the introduction of Cotton as a staple of our state, our soil was undervalued; not only by the farmers of other districts, but too much so by ourselves. We are situated, as it were, in the upper part of the low country; and hence, our lands were considered as adapted only, to the raising of stock, and the support of a small population. Within the last twenty years, our district has advanced much in wealth, population and civilization; and those lands, which in 1800, were only valued for their timber and the raising of stock, now send as much cotton to market for the number of cultivators, as most districts of our state.

Because most of the first quality lands in

the low country, consisted of oak and hickory, it was erroneously supposed that all lands having a growth of pine, were not calculated to make a due return for the labours of the husbandman. But much of our pine lands, are not only as productive, but consist of as good soils for corn and cotton, as the oak and hickory lands of those districts. Much of our best lands, however, are in a state of nature. I allude to our swamps and low grounds, which from the few trials made to ascertain their fertility, we are fully assured only require the art and industry of man, to make them as productive as the rich swamps in other parts of the state. I need not inform you that our cotton ranks among the first at market, of a good quality, and I do not overrate the value of our lands, when I assert my belief, that industrious farmers can make as much interest upon the capital employed in this, as in any other district in South Carolina. I shall not attempt to offer you any theoretical opinions relative to the food of plants, the nature of soils, or the constituent parts of manures which are used for the improvement of lands: concluding that in our state of agricultural improvement, a few practical observations, connected with the husbandry of our district, will be of more utility; for should my opinions be erroneous, they may ultimately advance the objects of our association, by inducing some of you, more qualified from experience, to correct them.

Although most farmers appear sensible of the propriety of draining their fields, yet the last unusually wet season must have forcibly convinced the majority of us, that this part of the preparation of our lands for cultivation is too much neglected. Indeed, the injurious effects of too much moisture, even upon lands that apparently do not require draining, is so manifest, that was it the custom of farmers, to devote a much greater period of every spring to the cleaning out of old drains, and forming more new ones than is generally done, each crop would fully reward them for this extra work.

To produce good crops, with the least labour and least injury to the soil, appears to be the great object of every cultivator. In the culture of cotton, as far as my experience goes, I am inclined to think these are certainly easier obtained, by deriving the most aid from the hoe, and the formation of large beds, and they made as early in the winter as possible—this prevents the growth of grass in the early part of the season, and then by the union of the plough and hoe, the crop is made with less labour than if the same be commenced with small beds. The best parts of the soil being covered early in the winter, the inferior particles are left to be benefited in the latter part of the season, by its exposure to the atmosphere, and the beneficial effects of frost and snow, and during the summer culture, the good soil is protected from the

injurious effects of the heat of the sun and beating rains.

In the culture of that valuable grain, Indian corn, so much attention has been paid both by northern and southern planters, that it would seem as tho' the subject was exhausted, and that we should at this period have united in some generally approved mode of culture—So far, however, from this being the case, we find the best farmers of the same state, differ as widely in their practice, as our agricultural writers do in their theoretical ideas upon this subject.

Having for four years adopted a plan different from my neighbours, with a great part of my corn crop, and this season, with the whole, with an increased opinion of its utility, I think I can state it to you with some share of confidence.

It appears proper, briefly to state the method I followed for the first seven years since I became a planter in this district, and the usual one. Although some of the best farmers break up their fields in the winter or spring, the majority (and myself among the number) having to settle a new place in part, only lay off their fields in the spring with three furrows in one direction, then cross the same with one furrow, at the intended distance to plant the corn, and as soon as the corn is in a fit state to commence its culture, the whole of the intervals are completely ploughed up at every ploughing, and all who can, give their corn a slight hoeing when young, and another when they lay by their crop. In preparing my field for corn, I only run one furrow each way, at the distance intended to plant the same. As soon as the corn is fit to plough, one furrow is run each side with a small plough, and in ten or fourteen days, the field receives a similar ploughing in the other direction. These two first ploughings are made with a shovel plough, that throws the dirt equally on both sides, so as not to injure the young corn by too much earth. This mode of culture is continued till the time to plant peas; when a middle furrow is run for the first time to receive them. When the corn is waist high, the number of furrows is increased—and when the corn tassels, it receives a full and last ploughing, and the alleys are completely broken up for the first time only. When the corn is fit for thinning, it receives a light hoeing, and after the last ploughing, it receives a laym by with the hoe. I cannot assert that this plan would answer in highly manured lands, where the growth of grass might be too much, or upon very stiff clays, which require a greater degree of pulverization, and as I do not wish to take up much time in giving any theoretical opinions, which appear to be a disflavour of this plan, I shall only add that I have made more per acre, in each of the 5 years with this mode of culture, than I made in any of the

7 years with the old plan; and that, notwithstanding the rainy season we have had, I never made a crop of corn with so little labour and so little grass; which this mode of cultivation does not produce to any great degree, till the corn crop be made. I must add, that I wish it borne in mind, that, as the corn grows, the space of earth broken up is to be increased; and that when the plant will require all the strength of the soil, the whole field is to be well broken up—and thus managed it will be much clearer of grass than most farmers have their fields, which have been altogether ploughed up at each of the previous ploughings. It is fully agreed among us, that an additional hoeing is necessary to obtain a full crop of peas unless upon new lands. For performing the last ploughing with the greatest benefit, I prefer having the corn wider one way than another; so that this last ploughing will not be injurious to the blades. The peas and corn, when laid by are upon rows that run north and south, which appear to give more of the influence of the sun to perfect the pea crop, than if they were planted so as to be more shaded by the growing corn.

From our distance to the market, it is probable that many years will pass away, ere rice will be cultivated for sale, although we have large bodies of swamp lands, which from the trials made with them, would be productive in that valuable grain. It is rather a singular circumstance, that from the experience of many of us, most farmers are inclined to the opinion, that with the usual seasons, our high lands produce more of rice than of corn, although it requires more culture and is supposed to exhaust the land more than any other grain. The *gold-seed* rice best suits our high lands, as that kind of seed is supposed to stand droughts more than the white rice. Having understood that a portion of valuable rice lands in one part of our state, has been reduced so low by long culture, or other causes, as not to be drained in a proper manner at the season for planting; I am induced to mention a well attested fact, that has occurred in our district this season. Mr Snelling, one of our farmers, having prepared a pond for rice, and in consequence of the rains it became so full of water, that he expected to lose all his labour, which induced him to wade knee deep in the pond, and sow the same broad cast with rice—it came up through the water—never was cultivated—and produced a moderate crop. Another pond, which Mr. Snelling had planted in rice last year came up with volunteer rice—was not cultivated—and produced a moderate crop also. This volunteer rice would afford a subject to the philosophical farmer, of much interest to solve. It is always *red*, although the seed of the same crop when planted, will be *white*, if the original seed was pure. But the same kind of seed, from remaining in the ground, comes up the next season and produces *red* rice. It would seem that the crop of Mr. Snelling deserves some attention from the rice planters; and that it fully establishes the opinions of General Thomas Pinckney, relative to this grain.*

* "After the meeting of our Society, I learned from

As a nourishing food for horses, coming in at a time of the year when they appear to be, not only nutritious, but well calculated to keep them healthy and perhaps prevent many diseases connected with these useful animals—the *Pumpkin*, appears fully to remunerate us for their culture, and from their covering so well the soil, it is said they injure the land less than most other products of the field. Having planted a field of them 6 or 7 years ago, 10 feet square, their culture first suggested to me, the idea of not ploughing up all the intervals of the land in the early state of some of our crops; and this crop was as good as the land could produce, had I given it double the culture it received.

Although our lands appear best calculated for cotton and corn, yet the various crops of *winter grain*, when cultivated with moderate attention, fully answer all our purposes. With respect to these crops, it would seem if we were to plant one third less in continued rows, and give the crop a tolerable cultivation with the plough; we should be well rewarded for the after culture, not only by the increased crop, but the growth of crab-grass and crow-foot, both of which grasses, as a summer pasture, appear decidedly superior to any others for our climate, unless the guinea grass, from further experience, should excel them.

From some of my experiments, the product of the *sweet potato*, was much increased from not cutting the seed, the result, however, was not always so, altho' the quantity of vines for planting, and their earlier fitness for that important part of our potato husbandry, was decidedly evident in every comparative experiment I have made; and to insure a greater quantity of vines for early planting of slips, I can, with confidence, recommend to those who make this valuable root a part of their crop, to plant a part of their field with large seed, and not to cut the potato.

Some attention appears necessary to the proper time to plant our crops. We are compelled to wait late in the spring to avoid the frost with our cotton; with regard to our corn, as this is not injured, if it be cut down once or twice in the spring, most farmers in our district, commence their first planting the first week in March. I have made the best crops from fields planted the last week in February and first week in March. Some benefit follows the practice of dividing the crop, so as not to have too much, in the same state of maturity. The advantages of laying off our crops as soon as they will admit, would seem to have a decided advantage over late planting, from the very great probability, that in our climate the sooner we can stop the exposure of the soil, to the influence of the sun, by a cessation of cultivation, and shading the same by the growth of corn and peas, less injury must be sustained by the land, than if the same weight of crop was one or two months in its later cultivation. With the different winter grains (oats excepted) I

an authentic source, that Mr. Hightower, another farmer of our district, has this season made a good crop of rice, from a pond which he sowed broad-cast in the water and never cultivated it."

have found the early part of the fall, the best time for planting—that grain, I prefer sowing the first week in January. Although I fear I shall trespass too much upon your patience, I must add a few remarks upon the important subject of a proper selection of seed.

Most of us carefully pick out the best corn for planting. But few attend to any thing like a proper selection of our cotton seed. Many of us reserve the first pickings for seed, which appears a good practice; but I know of none who select their seed from such stalks, as all of us notice every year to produce the most pods, with the fewest leaves and superfluous branches. This subject is more worthy our attention than we are aware of. Practical as well as theoretical writers, dwell much on the great and beneficial changes produced from a due attention to selecting the best seeds from each crop; and perhaps, it will not be hazardous too much, to calculate upon producing nearly the same important advantages, by a strict attention to this branch of agriculture, as have been so visible in the improvement of every kind of stock, by a selection of the best of each species.

The different kinds of fruit trees appear well adapted to the soil of our district; and with due attention, every farmer would have good orchards.

Native and foreign grapes answer well, and there can be no doubt, if any one well acquainted with the most approved method of producing wine from the different species of the grape, would turn his attention to this subject, much domestic wine of a good quality, could readily be obtained. The late Doctor Fortunatus Bryan, of our district, is said to have made some wine of a good flavour* from our grapes.

To bring our orchards to early maturity, to obtain better fruit, and to continue them productive a longer period; it seems to be a well confirmed opinion that being kept in a state of cultivation is more conducive to these ends, than any other plan yet attempted. The following experiment with peach trees has so important a connexion with this part of our subject, as well as agriculture generally, as to be well worthy the attention of all of us. It is from General Armstrong's treatise on agriculture, which contains much interesting matter, and has been republished in the *American Farmer*; an agricultural journal of our Country of such acknowledged utility, as I trust will ensure to it such patronage, as will enable its Editor, to continue his useful exertions. M. Chalmers painted "four peach trees resembling each other

* This would seem to be a suitable occasion to introduce a letter from General Calvin Jones, on the *Scuppernon Grape*; we shall therefore insert it at the close of this address. It was placed in our hands in the summer of 1820, by Mr. Jefferson, at whose table *Millet* was seen by us for the first time, in any shape. It was understood to have long been with him a standing and favourite dish—and the preparation of it to be such as is practised in cooking hominy, but without the addition of beans—and being accustomed, from earliest recollection to pay respect, almost reverential, to his tenets and recommendations in other affairs, we were easily tempted to taste his millet, but—"thinks I to myself," this may be very palatable to Philosophers—to aocrates, or a Jefferson—but rather dry for common folks!!

Edit. Am. Farmer.

as to size and vigor of growth, as nearly as possible. No. 1, in a hole three feet square. Nos. 2, in a hole two feet square, and No. 3 and 4, in holes eighteen inches square; the soil and exposition similar. No. 1, has every year produced the most abundant crops, and the relative sizes of the trees now are as follows. No. 1, eighteen feet high, and eight inches in circumference. No. 2, nine feet high, and five and a half inches in circumference. No. 3, six feet three inches high, eight lines in circumference; and No. 4, five and a half feet high, and three inches in circumference." The decided advantages of a proper preparation of our fields for all vegetable productions, are so evident from this, and many other equally conclusive facts, as to require no comment for its application to our crops generally.

A proper rotation of crops, is an object of much importance. We should often change the produce of our fields, from a grain, to a root crop; and I have never failed in a crop of corn, that followed cotton.

With respect to the cultivation of grass, few attempts have been made. I fear the clovers will not answer with us, though my trial, as yet, will not justify a conclusion against them. From a few experiments with the cocksfoot, or orchard grass, and the chickory; I conclude that the former is well adapted to all kinds of stock; and the latter, principally for sheep, appears to suit our climate, and neither of them are much affected with our winters, which greatly enhances their value. The late season has afforded a successful proof that the guinea grass is well calculated for our summers. It grew very luxuriantly, was planted on the 7th of May, and perfected some of its seed by the 10th of September. This grass is said to yield the most green food; and, after having cut off nearly all the seed, a part of mine planted on five feet beds, was cut on the 18th of October, and yielded at that cutting, the enormous quantity, of 87,120 lbs. per acre; more than 38 tons at one cutting. The transplanted grass perfected its seed ten days later, and this, as well as another piece, planted flush, and much clover, appeared to be far less productive.

From so small a portion of our district being in a state of cultivation, it affords many advantages for the raising of stock: with a little attention, hogs are raised more than sufficient for our own consumption; and also cattle. The latter only, require some aid in the winter months. Sheep answer well in our pine lands, and when we reflect, that a considerable portion of the clothing of our population consists of domestic fabrics, the improvement of our stock by the merino breed appears well worthy the attention of the society. Having, nine or ten years ago, procured a pair of this breed, they seem to fatten easier than the common sheep; and the wool very superior in quality, and quantity: what must enhance their value much, their wool does not fall off; and this marked distinction from the common breed, shows itself even with the 3-8ths of the blood. My breed of sheep, having lately been further improved by a ram of this blood, presented me by a relative,

(William Bellinger, of Lemmon, Island.) It will afford me pleasure to extend their breed more than I have hitherto done, by an exchange for other stock, on any terms most agreeable to those, who may wish to improve their wool with this breed of sheep. I have now some excellent cloth made with wool, sent to Newport, Rhode Island, five years since; it proved sound, and of good quality. Our stock would be especially improved by obtaining males of better breeds. But few of us are sufficiently aware of the very great changes which can be effected on all of our stock, by devoting to them much greater attention, than I fear any of us are in the habit of doing.

Most of us fully appreciate the benefit to be obtained from collecting all the manure from the stable, and cowpens; and do not neglect to aid our fields with all the cotton seed, which can be spared for this valuable purpose. Some diversity of opinion exists as to the most beneficial mode of applying this seed to our corn, whether it should be in a fresh state, or after it had been deprived of the power of vegetation; and I do not know of any conclusive experiment to decide the case. If the expenses attending the transportation of lime, salt, and the plaster of paris, were even not considerable, I should not incur them, for so far as my experiments go, neither of them, appear to have produced any beneficial effects upon corn, or cotton; and therefore the heavy charges attending their use, added to their original cost, it does appear to me will not, here, be restored to our farmers. In low situations, if lime could be procured at a moderate expense, I should calculate upon its efficacy, in rendering such lands, sooner fit for cultivation. It appears that a greater difference exists between swamp, and pond mud, than we should expect to find. The former in every case I have tried, produces beneficial effects, while the latter generally injures the young corn, and often totally destroys the stalk, though applied in small quantities. We must not, however decide prematurely in regard to the effects of all manures, since it appears from the experiments of a celebrated chymist, "that the times in which manures begin to produce their effects, and the length of time for which they operate, are proportioned to the degrees of putrefaction, under which they are applied."

Decomposed tree leaves, or vegetable mould, appear to be so fitted for every purpose of improving the soil of our fields, that I am inclined to the opinion, that, if the trash, and top soil of our low wood-lands, were applied to our high grounds, and the same parts of our high lands, to our low situations, much benefit must follow the change of soil, and the necessity of many drains be superseded. Agricultural writers suppose fresh cowpenned land to be injurious to a crop of barley, and I cannot account for a total failure, of half an acre of that grain which was planted the last season, upon well prepared, highly cowpenned, and well cultivated land, unless that cause, together with the rainy winter, and spring, produced such injurious effects. Much diversity of opinion prevails with practical farmers in regard to burning trash, &c. off our fields. Upon high lands gen-

erally, I prefer restoring them to the earth, but upon low lands, and such as have too much vegetable matter in its top soil; burning does appear to render them sooner fit for the cultivation of crops. If in burning, 90 per cent. is lost, and we do not obtain any thing that we did not possess at first, how will theorists account for the destruction of almost every plant, the first season of cultivation where a log heap was burned? since, if many log heaps were suffered to rot in the field, in the same spot, vegetation would be benefited by their mixing with the soil. It would therefore appear that occasional burning of the trash, would, from the small portion of salt, uniformly united to the soil, produce important changes beneficial to the nourishment of plants. Turning in growing vegetables to improve the soil, has been practised since the days of ancient Rome; and though some difference of opinion exists among writers upon the proper time to restore the vegetables to the earth, most of them agree that this process, either in a green, or dry state, much enriches the land. From the little experience I have had, I should avoid both extremes; and neither turn in the vegetables in too young a state, nor wait till too much of their juices were lost, especially in our warm climate; and hence I have endeavoured to restore the corn-stalks to the soil as early as possible after harvest, and if possible before frost. In connection with this plan, I have for three years preserved the cobs, and added them to the stalks before they are listed in, and apparently, with considerable effect, as they contain much alkali; which in small quantities is known to add to the fertility of most soils. Various vegetables have been selected, as they appeared to suit the climate; thus, in England, and many parts of our country, the clover is generally resorted to.

The Lupin and the buckwheat, are preferred in Spain and France, and Irouse attention to this subject, our cotton seed, sown or at least, would answer a good purpose. In conjunction with this plan, the enclosing system, so much extolled by the author of A tator, (Colonel Tylor, of Virginia) cannot be too much attended to—the great object is carefully to exclude all stock, and in the fall, before frost, to turn in all the produce of the soil.

Generally speaking, few of us plough our fields to a sufficient depth—yet, I should not approve of a deep culture, after the ground has been well broke up. Since the days of Jethro Tull, the father of the drill husbandry, the great effects from well broken lands, in increasing the beneficial influence derived from the atmosphere—in lessening the fatal effects of great droughts, and too much rain, are generally acceded to by all practical and theoretical writers on agriculture—but I regret to add, too many have adopted his doctrines, without giving this first of farmers, that credit, which he so justly merits, for the many important truths contained in his agricultural writings. I shall cite only one of his sentiments, which fully illustrates his opinion upon this subject: "I will a field in land,—once, alternately, one and very much frequent deep ploughing, and let another be rough by insufficient dragage,—then

plough the whole field cross ways, in the driest weather, which has continued long, and you will perceive by the colour of the earth, that every fine land will be turned up moist, but every rough land will be dry as powder from top to bottom." General Beaton, (former governor of that Island, which in future history, will be celebrated as the premature grave of Napoleon Bonaparte, is an exception to those writers, who have adopted Tull's doctrines, without paying to his memory, that tribute so much due, and those acquainted with his writings will be struck with a coincidence of sentiments between authors, who have written at the interval of nearly 100 years. It is only necessary to state, relative to Beaton's system of cultivation, that the Philadelphia Agricultural Society (of which the venerable Peters is a distinguished member,) has warmly recommended it to their agricultural brethren.

The shovel plough, appears to be well adapted to our state of agriculture, and I have for some years made much use, for the many purposes of farming, of this kind of plough, so altered as to throw the earth both sides—for tracking out our fields, the first ploughing of young corn, and the early culture of winter grain, and rice upon high land, this plough appears to answer many valuable purposes—it also breaks up the earth well, without leaving the field in large clods, especially in clay lands.—In unison with many of our farmers, I have made use of small ploughs, for some years in preference to large ones: and I am confirmed in this practice, by the perusal of some writers on this subject. A shovel plough, six inches wide, appears to answer all the purposes of a large one, and with less exertion to the animal to effect the desired end. I have no doubt, as we proceed to place our fields in a proper state to derive all the advantages in the saving of time and labour, which the various forms of the plough and harrow admit of; that many important advantages will follow their use; and I anticipate much useful information, connected with this highly necessary part of agriculture, from the successful exertions of our respected Vice President, (the Rev. Darling Peoples) who has for some time, paid much attention to this subject.

The writers in our country, as well as in Europe, assure us that we do not derive the advantages from the use of *Oxen*, which they appear fully capable of affording us. In the lower districts of our state, they appear fully to appreciate the value of their labour in heavy drails. With those of us, who have attempted to use them, they appear fully calculated to answer the many purposes upon our farms, to which, we almost exclusively apply, the more expensive, though nobler animal, the horse. The mule must not be neglected—they require less care and provision than the horse, and are well adapted to perform all the labors of our farms.

Experimental agriculture, is not only an interesting occupation to the farmer, but most of the great improvement, made in this Art, have, as in others, been the result of well conducted experiments. Since, however, the experiments of one season, are often opposed by those of another, we should

not hastily decide upon their results; for premature conclusions, often produce injurious effects. I hope we shall unite, as to the propriety of devoting our funds generally, to exciting an agricultural emulation amongst us; since it appears, as far as I can view the subject, that unless a spirit of competition be kept up among ourselves, so as to excite the attention of the farmers of our district, by the production of great crops from an increased attention to their culture, our Society will not answer one of the principal objects of its formation. A few well selected books upon agriculture, would certainly be an acquisition to our Society—and permit me to recommend to your notice, in addition to the American Farmer, the Monthly Magazine for the Southern Climate of the United States: surely the planters and farmers of South Carolina, will not suffer this attempt in our own state to fail, for want of that patronage, which from the first number, this work appears well entitled to. I have thus, gentlemen, in a hasty manner, noticed some of the subjects, apparently of most interest to us. If, however, we are in earnest to improve the state of the agriculture of our district, every member must act, as if the fate of the Society, depended upon his individual exertions. The zeal and spirit of inquiry, that existed among us at our organization, flatters me that our endeavours to increase the products of our soil, and to awaken in our neighbours, a sense of its importance, will not disappoint the expectations of our agricultural brethren. In the various sections of our happy country, who must view with some interest and satisfaction, our attempt to unite with them in their laudable exertions. Not only our interest urges us to increase the fertility of our lands; but, as the advancement of the interest of our state generally, should induce every citizen to prove himself an useful member of society, consequently, he is only discharging a part of his duty to his country, while he at the same time benefits himself.

JOHN S. BELLINGER.

October 19, 1821.

Scuppernong Grape.

RALEIGH, June 17, 1817.

My Dear Sir—I have not time now to give you as full an account of the Scuppernong Grape, as I intended when I promised it to you some time ago, as it would be necessary to consult the files of the Star. Should, what my recollection is able to furnish, be insufficient to answer the purposes of your friends, I will take another opportunity of supplying what may be deficient.

The vine, the leaf & the grape resemble very exactly, what is usually called here the Fox, Bullet, or Muscadine grape, except that it is of a white colour—but I suspect this difference, as well as the peculiar flavour of the juice, is owing more to soil, climate and cultivation, than to any peculiarity of species. Indeed the seeds of this grape, produce indifferent vines, affording grapes of both colors—but the dark coloured grape, yielding a acid and astringent wine, resembling port

somewhat, but Hock, more, is not thought worth preserving. The cuttings of the vines, always produce grapes of the colour of the parent stock, but if the seeds are employed to produce a vineyard, the first year of their growth, shows the variety, the tendrils which shoot out from the joints, being of the same colour with the grape that it is to produce, and those which are red or black, may be destroyed as worthless.

I am told that Governor Lane's and Capt. Phipp's Report to Sir Walter Raleigh, published in Haklyt's collection, speaks of this grape as growing on Roanoke Island, when the Colony first landed there. I am disposed to think the grape indigenous, and I suspect too, that when cultivated in the interior of the country, in elevated situations, and in a rich clay soil, the wine will be greatly inferior to that which we obtain from Roanoke Island and Scuppernon.

In the wine countries of France, as Arthur Young and others tell us, the quality of the wine depends much more on the soil and situation, than on the species of the grape. Cultivation will improve the quality of any grape, and I suppose it is owing to this, that Tenerife, once a very indifferent wine, has now become little inferior to that of Madeira.

This grape & wine, had the name of Scuppernon, given to them by Hendersin & myself, in compliment to J. S. Blunt, of Scuppernon, who first diffused a general knowledge of it in several well written communications in our paper—and it is cultivated with more success on that river, than in any other part of the state, perhaps, except the Island of Roanoke.

The seeds should be planted about three inches deep in the earth, at any time during the autumn or winter. I think Mr. Blount gave the preference as to time. The cuttings should have three joints—two should be buried in the ground and one left above it. I was at Roanoke Island, in March or April—Saw many vines, but never the grapes. There was great uniformity in the manner of raising them there. Their buildings also, had considerable uniformity. Usually the dwelling house was two rooms in length, and only one story high. The kitchen was usually about 50 or 60 feet in the rear of this. About mid way, between the two houses, the grape vine was planted—this rose and spread upon a scaffold, that extended from the eaves of one house to the other, and of the width of the buildings, affording at the same time a very agreeable shade, and an annual product of a hundred gallons of excellent wine. I was told that a vine in eight years after it was planted, would cover a scaffold of these dimensions, and yield eighty gallons of juice. The vines are never trimmed, and it is not known whether the grape would be improved by such a process. Mr. Garnier, near Wilmington, whom I visited three years ago, and who had then just planted a great many vines, told me, that in France, vines were always trimmed every year, leaving only two, or at most three, and sometimes only one new joint—that if suffered to extend themselves, the grapes would degenerate in size and flavour; but he doubted whether, under our warm sun, this

pruning was necessary. At Roanoke, when the grapes became ripe, a sail was spread upon the ground under the vines, which were shaken by applying a forked stick to them—of course the ripe grapes only fell. This was repeated daily, or as often as the grapes became sufficiently ripe. The green and the diseased grapes were gleaned out, and the remainder mashed by some operation, that bruised the skin much, without breaking the seeds. Treating with the bare feet, was thought the best mode. The juice was then pressed out and completely filtered, and one-sixth and sometimes one-fifth of its quantity of proof spirit was added. Sometimes the spirit was not added until the fermentation had made some progress.

The addition of any quantity of water or of sugar but served to spoil it. When there were cellars, (which was seldom the case) less spirit was necessary, and the deeper the cellar the better. I suppose that depth where the temperature would be always the same would be best; and I have no doubt Wier's Cave would make an admirable wine cellar. A few persons who have the advantage of both hotles and a cellar, bottle it as soon as the fermentation commences, and add no spirit. I drank some wine made in this way lately, at Judge Paylor's, which was light, clear, and very pleasant. It was three years old, and was made by Mr. Pittigrew at Lake Phelps. I understand this wine resembles very exactly the Constantia wine made at the Cape of Good Hope and is said to be not at all inferior to it; though we have had much of the Scuppernon wine, so called in Raleigh, we have had but few fair samples. The reputation which it suddenly obtained here in consequence of our newspaper publications, occasioned a great deal to be manufactured of honey and other ingredients that has injured the character of Scuppernon wine. But some that I have drank here, and all that I ever drank at Roanoke Island, I think not inferior to London, particular Teneriffe. That which has brandy in it, I should have compared to the Sicily wine which it now resembles. Cape wine I never tasted. The soil of Roanoke Island is sand and loam—a kind of warm soil that we should call good cotton land. The natural growth of wood of the Island is pine and chinquapin, (dwarf chestnut) and there is much myrtle and jessamine. There are many of the Scuppernon grape vines, growing in and about Raleigh but I have no idea, even, if the grapes flourish, that the wine will bear a comparison with that made at Roanoke and Scuppernon. It is a misfortune attending the character of this wine, that age has never yet done it justice. It is generally drank new, and yet no wine improves more by keeping.

I am dear sir,

Yours, &c. &c.

CALVIN JONES.

To

COL. HUTHINS G. BURTON,

Halifax, N. C.

French brandy is said to be the best spirit to be used in making Scuppernon wine. I

start to-morrow for Columbia, where I shall be absent three or four weeks. Is the tramping about the foot of the vine, as they are planted at Roanoke, between the house and kitchen advantageous to the grapes? I suspect it is, though I never heard it mentioned. Here cherries will not do well upon a tree that stands in the loose cultivated soil of a garden, but are fairer, and adhere better if the tree is planted in the walks.

On the Value of, and Different Modes of preparing, Burnt Earth for Manure.

[From Essays on Practical Husbandry, by EDWARD BRANOVUS, Esq. Essay Second, On Manures and their Application.]

This substance being but little known as a manure, and being highly valuable on most soils, merits the particular attention of the cultivator: it has also this particular recommendation, that there are but few farms on which it cannot be prepared, and can be obtained at a cheaper rate than most other manures.

By the term "burned earth," is to be understood, any species of soil that is capable of being torrefied or dried up by excessive heat, preserving, at the same time, its original staple after that operation. Clays of all sorts, and strong loams, will answer well for this purpose; but moors and sandy soils, being deficient in tenacity, will not torrefy to advantage, as I shall, in its proper place, explain. It is necessary to observe, that this mode of preparing earth as a manure, is upon a principle very different from that of reducing it to ashes; and though the effect produced on the land on which it is applied may be apparently the same, yet the torrefied substance is by far a more permanent manure.

The chief difference in the preparation is this:—In reducing the soil to ashes, much of its fertilizing properties are dissipated, and its vegetable matter destroyed; but, when torrefied, those properties are preserved, and its vegetable matter only reduced to a state more valuable as the food of plants. There are two sorts of burned earth; 1st, That which is produced from the subsoil; and 2dly, That which is produced from the surface, or upper soil. I shall treat of them severally, in order to show how they are to be appropriately applied, and to point out the best mode of preparing them under different circumstances.

First.—Subsoil calculated for this purpose may be said to be of two kinds, viz. adhesive clay, and calcareous earth; the former seldom possesses any fertilizing properties in its natural state; but the latter is generally a valuable substance, even in this state. As alternatives to the soil, they may be good applications if appropriately applied, and may produce fertility accordingly; but, by putting them through a process of torrefaction, however naturally deficient in fertilizing properties, they can be converted into valuable manures. Hence it would appear, that the most fertile subsoil would be the most advantageous to torrefy, and this I have no doubt, is the case; but then, as the process will make any description of soil a valuable manure, the only object is, to procure that which will answer best for this purpose.

The most simple and the cheapest method of preparing this manure, is, to excavate a place in the pit out of which the subsoil is to be raised for this purpose, and in this place to build the kiln. The subsoil will then be convenient to throw on the kiln; and the culm for assisting in the burning of it may also be laid down convenient, as it is wanted. The kiln is built in the following manner, viz.

An arch of about four or five feet long, three wide, and two high, is made with well burned brick; the front of which is close like an oven, and the inside fitted to receive a strong fire of coals. On the top of the arch six or eight holes are left, the size of a

small brick, to admit the heat passing out, which is to communicate to the earth laid on. When the fire is sufficiently strong, the door of the kiln is to be well stopped, and the earth thrown on in some degree pulverized, about six or eight inches thick, so as to cover the top of the kiln, and every direction around it to which the heat might communicate. In this manner it is to be dressed alternately with culm and earth, which are to be laid on accordingly to the heat of the fire, which is on no account to be permitted to burn too strong.

After the kiln is once well lighted, it will burn several hundred bushels of earth without any additional fire inside; and the same kiln will answer for a length of time to renew the process when it may be necessary.

The substance which I saw put through this process on the lands of Doveridge, was a yellow clay of a strong nature, and liable to become calcined by excessive heat, which Lord Waterpark found to be the case on his first commencing his experiments. However, on reducing the strength of the fire in the kiln, and not giving so heavy a dressing of culm between the layers of clay, the heat was just sufficient to produce torrefaction; and when the clay was carted out, it was in a mellow and pulverized state.

This was applied, in the month of April, on a field that had produced barley the year before, and the soil of which was nearly similar to the subsoil applied on it. The result was, that a most excellent crop of barley was obtained by this dressing, even better than on another part of the same field which had been limed in a sufficient quantity, and treated in the same manner.

Subsoil may also be torrefied in kilns made of sods, or mud and straw, as follows; viz. On a headland, or waste piece of land, off which sods can be had sufficiently old to build walls, erect four parallel to each other, and forming a square of eight feet in the clear; let these be well joined at the angles by crossing the sods, and raised about four feet high at the commencement, and twenty inches thick. Through the centre of the four walls, and on a level with the surface, cut flues, so that they will all meet in the centre of the kiln, about five or six inches deep, and four wide, which are to be covered by sods on the top, leaving intervals between them of less than an inch. These flues are to be kept free of clay or rubbish, and the mouths well open to the air.

In the centre of the kiln place brushwood, turf, or other combustible matter; also, some small blocks of wood to strengthen the fire; and, when all is well kindled, throw on some culm, and then clay, and so on, as you find the fire sufficiently strong to take dressing; always observing to keep the heat of the kiln as even and as moderate as possible, just of sufficient strength to expel the moisture from the layers of clay as they are thrown on. Much care should, however, be taken not to cover the fire too soon after being lighted, which would be likely to extinguish it too early.

The reason of raising the walls at the commencement only four feet, is, that the firing may be more readily placed in it; but, during the burning, they should be always kept eighteen inches higher than the centre of the kiln, in order that the wind should not have power on the surface of the fire. As soon as the kiln is strongly kindled, two flues should be stopped, observing always to keep those open which face as much as possible the windward point; should the kiln burn too strong, one of those will be sufficient to leave open. It will often happen that the kilns will burn to a height of eight or nine feet; but it is of no advantage to let them burn higher than seven feet, as the inconvenience of dressing them, when so elevated, adds too much to the expense.

When kilns are well managed, one of the size I have described would be burned in about six weeks, at the end of which time the walls would be so torrefied as to become of equal value, as manure, with the interior of the kiln; however, it cannot be expected that they will be in a state sufficiently pulverized to

*Communications from Lord Waterpark, Doveridge.

put out the same time for a crop: it would, therefore, be advisable to have them broken down as soon as the kiln has burned out, and to mix and blend altogether. About two months after this preparation, it will be in good order to put out for a green crop; but, for a corn crop, it should be in the highest state of pulverization. Calcareous earth is considered to be, by some scientific farmers, the best substance for burning, on the principle that the calcareous matter which it contains is reduced to lime in the process of torrefaction; therefore, lime being, in their opinion, the best burned substance which can be produced, the manure the most ripe with it must be the most valuable. Now, there are two matters to be ascertained before this theory can be admitted:—1st, Is lime a greater fertilizer of soils in general than torrefied earth?—and 2dly, Whether, in the process of burning any subsoil which has a large portion of calcareous earth, the effect which should be produced by torrefaction would be counteracted if there were sufficient fire applied to reduce the calcareous particles to lime?

First. Lime being established as a valuable application on many soils, it would be no easy matter to persuade those who have not tried burned earth as a substitute, that it possesses more fertilizing properties; but then experience, by which all must be governed, has convinced me, that this latter substance is by far more valuable, on many soils, than lime. I have tried it on strong clays, on light soils, and on moory soils, on all of which it produced good crops of potatoes and turnips, and afterwards corn; and, in one instance in particular, where lime had been applied ineffectually, a dressing of burned clay made the land yield most abundantly. Lime only stimulates and pulverizes the soil; whereas burned earth not only possesses those properties, but contains in itself enriching and vegetative qualities. The following experiments will serve to corroborate these assertions.

On a wheat stubble (the soil a light sandy loam) which I had gravelled as a preparation for that crop, I sowed barley in the following spring, the land being winter fallowed, and in good tilth; part of the field I dressed with burned clay, and part with lime and clay in compost. The crop was sown, and treated on both parts equally alike; but the portion of the field on which the burned earth was applied, produced by far the best quality of grain, and also a greater quantity to the acre.

On a moory field, which I prepared for a potato crop, I applied a heavy dressing of strong clay and lime compost, (not considering the land sufficiently strong to take pure lime with advantage;) part of the field remained undressed until May, for want of stuff to lay on, and, it being late in the season, my farm-yard dung was all consumed. I therefore, had no alternative but to prepare some burned earth, by digging the head-lands, which was laid on the remainder of the field about the 20th of May, and potatoes planted. The result was most encouraging; the crop on this part of the field being better than where the lime and clay had been applied.

I shall now proceed to show the mode of preparing the surface, or upper soil, so as to produce valuable manure. Head-lands round tillage fields are the principal source from which to obtain earth for this purpose; and let us nature be what it may, provided it adheres when dug with the spade, it can be torrefied in a kiln made of sods, in the manner I have already described; but, then, the principle on which these sods are burned being different from that of preparing subsoil for this purpose, it is necessary to state the process minutely.

If the kilns be made of sods, they may be immediately lightened on being finished; but if of mud and straw, they should be permitted to dry before it is applied. Any labouring man, in the habit of building huts with sods or otherwise, can prepare a kiln without difficulty; and as it is not necessary that neatness should be observed, five or six men could erect one in a day. The walls, however, when made of sods, should be beat close with the spade, in order to prevent them from drawing air, by which the burning of the kiln would be much retarded. The successful burning of these kilns chiefly depends on

the judicious manner in which the kindling is placed in them, and the sods laid on the fire; for they are not to be dressed with any combustible matter alternately, as is the case when the subsoil is burning. The entire operation is performed by the heat from the fire in the body of the kiln passing through the interstices of the sods, and which are formed by laying them loosely and openly on the top of each other. It is, therefore, advisable, that the sods used for the purpose of dressing the kiln, should be cut as square and lumpy as possible, and of a size that they can be readily handled, so as to lay them on the kiln carefully:—loose earth should not be thrown in on any account.

The best materials for lighting, the kilns are, turf and coarse timber; but where those cannot be procured, any kind of brushwood and coals may be substituted with effect; but the fire should be made stronger in those kilns than when subsoil is to be burned. It will be necessary to lay on the sods very expeditiously on the fire being properly kindled; otherwise the combustible materials would be exhausted before a sufficient quantity of the sods was heated; and on this chiefly depends the successful burning of the kiln. For this reason, it would be necessary to light them early in the day, that they may be well covered before sun set in dressing them, the sods should be laid close to the walls, and the centre kept a little elevated; and those points where the fire breaks out strongest should be heavily covered, as the kiln would be exhausted by permitting the smoke to pass too rapidly away.

It is evident that, after the kindling is burned out, nothing remains but its effect, which is simply that of heating the sods immediately near it, and retaining a great body of heat in a confined space. By the heat being thus smothered, no reduction of the innate properties of the soil can take place, nor any of its grasses dissipated; neither is it much reduced in quantity; it is merely dried up, or torrefied, by the process, and made more capable of imbibing, when blended with the natural soil, those properties of the atmosphere conducive to vegetation.

Having stated the principle on which earth prepared in the foregoing manner is converted into manure, I shall make such general observations on the subject as may elucidate the matter more satisfactorily to the practical farmer, and to convince him that it is not founded on casual experiment to imagine in fancy, but founded on a system that has for many years existed, but which has only been lately brought to scientific perfection.

In the northern countries in Ireland, the burning of earth was very general; and this practice is supposed to have originated from a want of manure, flax being a great exhauster of the soil, and not producing any vegetable substance which would ultimately benefit it after yielding that crop. I understand, from several intelligent persons who have seen this manure applied on different farms, that it made the most inferior soil produce good crops of potatoes, corn, and flax; but as I have not been an eye-witness of their mode of preparing it, I must be satisfied to state the result of the experience which I have had for some years, both as to its preparation, and in applying it on different soils.

I have already observed, that no part of a farm is so well calculated for this practice as headlands:—1st, From the soil being deeper on them than on other parts of the field; and, 2dly, From the benefit which the land will receive by cutting away such rising headlands, and giving it a gradual slope to the dikes or water-cuts. If such headlands can be found convenient to fallow lands, there will, consequently, be much expense saved in carting out the manure; and even the brows or backs of ditches could be converted to this purpose without injury to the fences, and, in many instances, would effect a general benefit. But should any of those resources for supplying sods fail, or that no subsoil calculated for burning can be found on the lands, the surface of grass lands which have a good depth of strong soil, may be advantageously devoted to this purpose.

It may be said, in objection to this practice, that the injury a piece of grass land so stripped would

suffer, would be much more than any benefit that the manure produced from it could possibly be; for that the land so stripped could never be beneficial afterwards in any way whatever. I shall, therefore, state some experiments which I made on this point, and leave the reader to judge of the ultimate results.

First.—I stripped about twenty perches of grass land; the upper soil a loamy sand, the subsoil a poor yellow clay, very weak and friable. The upper soil was about twelve inches deep, and near ten inches of this was cut away in sods for kilns and burning; so that not more than two inches of the surface soil was left after the manure produced was carted away. The twenty perches were then ploughed, and manured with a well prepared compost heap, and a light dressing of the burned earth which it had produced, ploughed once, and then planted with potatoes: the crop proved of good quality and productive. The second year it was planted with potatoes in like manner, and produced as well as the adjoining part of the field off which the sward had not been carried.

Second.—I practised this the following year on a similar piece of land; and the result was equally encouraging, indeed more so; for the potatoes were better where the sward was taken off, than in the adjacent part of the field which was ploughed out of the ley, and manured in the same manner.

I do not, however, mean to assert, that there are not lands which, by such practices, are not in some degree deteriorated; but certainly the deterioration they suffer is not so serious as is generally supposed; and I have no doubt, was the land so treated to be well cultivated and manured for three years successively, that it would be effectually restored to its primitive state. Now, when we recollect the quantity of valuable manure which is obtained from so small a surface, surely it cannot be considered as bad management to create a temporary injury, (if such should be,) to obtain a permanent and extensive benefit.

Off the twenty perches, as already stated, I had as much manure as dressed two acres abundantly for potatoes, and which, the following year, produced better wheat than was obtained off similar soil by the application of the farm-yard dung. I also tried it for turnips the same year, and never had a more even or a better crop. Suppose then the staple of the twenty perches to have been reduced; query, can it not be brought to a sufficient depth by a few deep ploughings and judicious manuring, the expense of which would be but trifling on so small a surface?

It is well ascertained, that soil of any description can be made fertile by exposure to the atmosphere; and the appearance of soil brought up by deep ploughing, should never deter the cultivator from trying his skill in this way. Every day's experience shows us, that land which has been dug two spits deep becomes more fertile afterwards, although the good soil, as it is termed, is turned down, and the subsoil brought up: this should evidently convince us, that much is yet to be learned in the science of promoting vegetation.

I shall now make some observations on the value of this manure in general, and show its great advantage as a means of extending profitable cultivation, and of promoting the comforts of the small farmer and cottager.

The number of acres which are fallowed throughout Great Britain and Ireland, in consequence of the want of manure, causes a serious reduction in land produce for the consumption of the population of those countries; and this evil must increase progressively as tillage is extended, unless a sufficient means of renovating those lands under cultivation increase in the same proportion. The system so generally practised in Ireland, of stimulating the soil by an application of lime, and giving it rest by occasionally fallowing, has been, at length, found to be unprofitable, and a practice which ultimately, on light soils especially, reduces them to barrenness. When lands are reduced to this state, it is no easy matter to treat them judiciously; for although they may produce light crops of some artificial grasses suited to their condition, yet the returns from these must be very deficient, and

must, consequently, be a drawback from the general profit of a farm. The discovery, therefore, of a cheap valuable manure, must be considered as a matter most essential to the interest of agriculture; and that which is the most easily obtained, and the most efficacious, must be considered as the most beneficial.

The expense of burning clay in the kiln here described, is from threepence to fourpence an Irish load, or about forty or fifty shillings an Irish acre; and as there are but few farms on which some sort of earth fit for this purpose cannot be procured, it may be safely said, that it is within the reach of every farmer to obtain it. It is, however, necessary to state, that when the sods of light soils are burned, the manure produced is not calculated to apply on similar soils, but should be put out on tenacious clays, moors, or other soils dissimilar to that prepared for this purpose. But strong clay put through this process becomes excellent manure for soils of the same sort; its property is totally altered by torrefaction. Thus it will be more advantageous to obtain the strong soil, if possible for preparing this kind of manure.

I have found peat to be much benefited by mixing peat mould with burned earth produced from light soil, in the proportion of one-third of the former, and two-thirds of the latter substance, especially should it be necessary to apply it afterwards on sandy soils. I tried an experiment on two acres of land last year to ascertain this fully:—one acre was planted with potatoes, with the burned earth unmixed with any other substance; the other had the peat and earth; and the result proved the superiority of the two substances blended. The peat mould was dug through the earth as soon as the kilns were fit to break down, and left in this state for two months; the heap was then turned, at which time the peat was highly fermented from the heat of the ashes and burned earth. I conceived that the vegetable matter contained in the peat, and its tendency to retain moisture, acted as an alternative on the soil to which it was applied, and which, being a rabbit sand, was deficient of vegetable matter, and incapable of retaining moisture.

Burned earth may be depended on as a manure fit to produce abundant turnip crops of every description, on a variety of soils; even the Swedes, so difficult to grow on light soils, will prove a more luxuriant crop with this manure, than with farm yard dung, and are less liable to be cut off by the fly. For those crops, however, it should be well prepared by breaking down the kilns as soon as they are sufficiently burned, and by pulverizing the soils, and mixing the ashes through them; and this should be repeated a third or fourth time if necessary.

It may be supposed by some, that any crop sown on this manure would be precarious in a dry season, not containing, as they may conceive, any enriching quality or properties to preserve moisture. But this is by no means the case; for it will be found, that an application of torrefied earth makes the land on which it is applied more capable of absorbing moisture from the atmosphere, and, by minutely dividing the soil, the roots of plants can search more freely for nourishment. I have often observed, that farm-yard dung, unless very well prepared, does not, in excessive dry seasons, supply sufficient moisture to the roots of plants; and that, during such seasons, crops sown on ashes or burned earth, have uniformly thriven, while those in dunged land have gradually declined. I state this to show more clearly the wonderful property of all burned and torrefied substances in absorbing the food of plants from the atmosphere, and after-

wards preserving these for the benefit of their vegetation.

It is a common practice among farmers, both in England and Ireland, to dig headlands, old ditches, and other waste places, and to collect them for manure, by adding some dung or lime through them. This is attended with heavy expense 1st, From the quantity of dung or lime necessary to make the heap profitable; and, 2dly, From the double carting which must take place on which it is to be applied. Now, after all this expense, the manure obtained is of a very inferior quality to what could be produced by putting the earth through the simple process which I have already described; and one load of it would be more valuable than double the quantity would be its raw state. Thus a saving of one-half the cost, in carting alone, would be effected, one load of burned clay being equal to two loads of such compost, besides having the dung or lime to appropriate to other purposes.

It may sometimes happen, that the place off which sods can be obtained is so much detached, that it would be attended with too much expense, and, perhaps, great inconvenience, collecting them for a large kiln; in this case, large heaps of the sods may be made and torrefied in the following manner; viz.

Let four fuses be cut on the surface of the land, convenient to where the greater part of the sods can be collected, about eight inches deep, and six wide, and covered, as before directed, with strong sods. The firing is then to be placed on the centre, where the four fuses meet, which must be stronger, in proportion, than what would be necessary for a close kiln, as the burning of the sods in this manner will entirely depend on the strength of the fire, and the judicious manner in which the sods are placed on the heaps. The kindling should be perfectly covered with sods before it is lighted, and then piled heavily as soon as it is well kindled, but observing to cover those places first from which the smoke issues the strongest. Two of the fuses should be stopped as before directed; and when the heap ceases burning, which is generally the case in four or five days, it should be covered well with the surrounding soil, and left so for some weeks before it is broken down or turned.

Sods burned in this manner do not produce such good manure as in a regular kiln; neither does a certain quantity of firing prove so productive in those round heaps, as it does in kilns; it is, therefore, only necessity that should cause the adoption of this mode instead of the regular kiln. By this it will appear, that, by the erection of the walls, the heat is retained effectually, and will often continue for six or eight weeks after they have done burning; whereas, in the round heaps the air having the full power on the surface, the internal heat is soon checked; besides, the walls ultimately become manure, and the expense of erecting them is but trifling.

Burned earth is an excellent manure for garden seeds, especially when applied on rich soils which have been often dunged, or inclined to weeds; it does not engender slugs or worms, and is, therefore, well calculated for such plants as are liable to be cut off by those insects.

On the whole, it must be considered as a most valuable addition to the farmer's means of cultivation and improvement; and I am satisfied, that it only requires to be known to entitle it to this character.

Massachusetts AGRICULTURAL SOCIETY OFFICIAL REPORT.

The Committee on Agricultural Experiments submit for the consideration of the Board, the following in addition to their Report dated the 11th of October last to wit:

That Payson Williams, Esq. of Fitchburg, in the County of Worcester, is entitled to the Society's premium of twenty dollars, for having raised the greatest quantity of Potatoes, being five hundred and fifty-one and a half bushels, on one acre of land. Mr. Williams has been a successful competitor for some

of the premiums offered by the Trustees, three years in succession, which must be attributed to his skill on husbandry, and to the excellent management of his agricultural concerns. In his communication to the Committee, he states, that "he planted 24 bushels of potatoes, 3 of which were the Irish Apple, so called, imported from Liverpool, last winter, 3 the Fitchburg Whites, and the remainder the Rio de la Plata Reds. The relative yield between the European, American, and South American, resulted in favour of the reds of La Plata; yet in quality, for the table especially, the Irish are far superior to either, and ripen four weeks earlier than the other kinds."

The entire expense of cultivating this acre of land in potatoes, including the value of the manure, was eighty-four dollars and ninety-eight cents. Mr. Williams also claims the premium of thirty dollars, for having raised the greatest quantity of Spring Wheat, on one acre. The Committee, however, did not consider him to be entitled to said premium, the quantity raised not exceeding a medium crop for Massachusetts. In his letter to the Committee, he says, "The extreme drought of the season will account for a crop of not more than twenty bushels and twelve quarts of wheat from the acre."

That Messrs. Tripart, and Henry Little, of Newbury, in the County of Essex, are entitled to the Society's premium of thirty dollars, for having raised the greatest quantity of Indian Corn, being one hundred and five bushels and six quarts of sound corn, on one acre. In their statement they say, "The seed was the eight rowed yellow corn, selected in the field, from the most fruitful, sturdy stalks of the preceding crop, four or five kernels put into each hill—the hills were four feet by three feet apart: it was hoed three times, and the vacant hills filled up the first and second hoeing by transplanting from those that had four or five stalks, calculating to have three stalks in each hill." The entire expense of cultivating the acre, including the cost of the manure, was thirty-one dollars. Messrs. T. and H. Little are also entitled to the premium of twenty dollars for having raised the greatest quantity of common English Turnips, on one acre, being seven hundred and fifty-one bushels, "completely trimmed, fit for the market—about two hundred bushels have been sold, some of them were sold by the ton, and I have been weighed, and we find that they weigh fifty-four pounds to the bushel. The land was ploughed with a horse, and a double mould board plough, in ridges three feet apart—one row was sown on each ridge, with a machine, which took one pound of seed, and a hand roller was made to pass over each ridge, which completed the sowing, which was on the fourth of July. When they were out of the way of the fly, they were thinned, to the distance of one foot apart, on the ridges; they were twice ploughed and hoed: about the last of October they were harvested." The entire expense of cultivating the acre, including sixteen dollars, the cost of nine cords of manure, was thirty-two dollars and thirty-three cents.

That John Prince, Esq. of Roxbury, in the County of Norfolk, is entitled to the Society's premium of twenty dollars, for having raised the greatest quantity of Mangel-Wurtzel, being six hundred and forty-four bushels, on one acre. Mr. P. states to the Committee as follows: "The soil is a rich light loam, on a hard, gravelly bottom, on a hill descending to the south, having sixty apple trees in the above space, averaging fifteen feet high, which obliged me to have the rows directly up and down hill. The heavy rains washed and very much injured the crop—could the rows have been across, I doubt not one third more of the roots would have been gained." The entire expense of cultivating the acre, including 46 dollars for twenty-three loads of compost manure, was sixty nine dollars and seventy-five cents, being 10½ cents per bushel, of fifty-six pounds weight; besides a large quantity of thinings during the season, and also of leaves at the time of harvesting. Having succeeded perfectly in preserving my roots in the ground last winter, as published in the Repository, No. 3, vol. 6, I have this year deposited, in precisely the same manner, most of the above crop, and also about four hundred and fifty bushels of Ruta Baga." Mr. Prince is

*It is well known that burned clay, after being reduced to powder, will not again coalesce, so as to be formed into a brick, unless it has been treated with the acids. The powder of burned clay has always in that happy medium between cohesion and repulsion of the particles, which, as has been already observed, is best adapted to divide the particles of water, and give admission to the roots of vegetables. I have long remarked with surprise, the wonderful power or fertility which this substance, discover whether in a body by itself, or mixed with raw earths. —*Naimyth's Elements of Agriculture*, p. 340.

also entitled to the premium of twenty dollars, for having raised the greatest quantity of Flax, being at the rate of six hundred and nine pounds to the acre. "Having the grounds previously ploughed and harrowed, with Bennett's broad cast sowing machine, 1 sowed clover, herbs grass, and red top seeds, on three quarters of an acre and thirty-seven rods, which were deeply harrowed in, and then one bushel and a half of the best cleaned flax seed I could procure, was sown on the land, with the same machine, and very lightly harrowed and rolled. This method was adopted, that the roots of the grass might be deeper than the flax, so as not to be disturbed in pulling the flax. So few weeds made their appearance, that no attention was paid to them. On the 26th of May, finding the worm was attacking the flax, I spread on one half dry ashes, and on the other half, plaster of paris, which had the desired effect of checking them. Nothing further was done till the flax was pulled, on the 27th and 28th of July. Eleven bushels of seed, of an excellent quality, cleaned by Hotchkiss's new machine, were produced, notwithstanding the yellow birds had taken a large share. The soil is a rich, deep loam, on a gravelly bottom, and has six y seven apple and pear trees, from 10 to 20 feet high, growing on it, which produced much shade, and of course must have injured the crop." A specimen of the flax, which is of a very good quality, well cleaned, and prepared for spinning, accompanies this report.

That E. Hersey Derby, Esq. of Salem, in the County of Essex, is entitled to the Society's premium of twenty dollars, for having raised the greatest quantity of Cabbages, being forty-three tons, nineteen hundred and ten pounds weight, on one acre.

Mr. Derby is also entitled to the premium of thirty dollars, for having raised the greatest quantity of Vegetables, (grain, peas and beans excepted) for winter consumption, of the stock on his own farm. It will be seen by the certificates produced by Mr. Derby, and which accompany this report, that he raised the last season on his farm, 749 bushels of Mangel Wurtzel, 530 bushels of Carrots, 520 bushels of Swedish Turnips, 1298 bushels of Potatoes, 126 bushels of Russian Radishes, 737 bushels of common English Turnips, 43 tons and 19 hundred weight of Cabbages, and 15 ox-cart loads of Pumpkins.

That Mr. David Little, of Newbury, in the County of Essex, is entitled to the Society's premium of twenty dollars, for having raised the greatest quantity of Ruta Baga, being six hundred and 88 bushels, on one acre. "The seed was sown on the 12th and 13th of June, one row on each ridge, which took 3-4ths of a pound of seed, and covered with a light harrow, drawn by a horse, lengthways of the rows, July 5th, commenced ploughing between the rows, hoed and thinned them to the distance of about 10 or 12 inches. They were twice hoed and ploughed; the 8th day of November commenced harvesting;—six men and four boy boys pulled and trimmed off the tops fit for market, in five hours; they were then measured—the product was six hundred and 88 bushels." The entire expense of cultivating the acre, including the cost of four cords of manure, was twenty-three dollars and seventy-nine cents. Mr. Little also raised five hundred and thirty bushels of common Beets on one acre.

That Mr. William Mears, of Marblehead, is entitled to the Society's premium of twenty dollars, for having raised the greatest quantity of white Beans; being thirty-two bushels and four quarts, on one acre.

That Thomas Shepherd of Northampton, in the County of Hampshire, claimed the Society's premium of thirty dollars, for making the most satisfactory experiment to ascertain the best mode of raising Indian Corn; being raised sixty one bushels and twelve quarts of corn, and one hundred sixty bushels of ruta bage, on one acre. In his letter to the Committee, Mr. Shepherd makes the following statement:—

"The acre was sown in alternate rows of corn, and ruta bage, the corn rows being 8 feet apart. The whole field of nearly 20 acres, except the acre that produced 87 bushels and 24-32, was sown in rows 8 feet apart; and the half acre, which yielded 61 bushels and 12 quarts was not better than a fair

average of the field. It is my belief, that 75 bushels of corn, and 3 or 400 bushels of ruta bage, (or 2 or 300 bushels of potatoes) can be raised on one acre of good rich ground, cultivated in this way; but the corn must be sown very thick in rows, 8 feet apart, and the ditch well filled with fine mellow earth, and plenty of manure; nor is it an expensive mode of culture, considering the great crop to be obtained. The cross ploughing and furrowing is extra work; but this it is, with the aid of the harrow, that makes the great crop, if sown in wide rows, as my experiment this year proves, having got at the rate of 122 bushels and 24-32 to the acre, in this way; and in the narrow rows, with more exhaustion of the land, only 67 and 24-32 bushels."—Your Committee have not awarded to Mr. Shepherd the premium claimed by him. The worth of the rows, as recommended, favors unquestionably very much the growth of the corn; and the crop, taking into the calculation the ground actually occupied by it, was certainly very great; still your Committee are not convinced that Mr. Shepherd is entitled to the premium for making the most satisfactory experiment for ascertaining the best mode of raising Indian corn. Much praise is due to Mr. Shepherd, for the extensive and correct manner in which he has, for several years past, cultivated one of the finest farms in New-England. Mr. Shepherd also claims the Society's premium of thirty dollars, for introducing a grass superior to any before cultivated in this state, which your Committee would most gladly award to him, could they, after due consideration, believe him to be entitled to it; but from their own observation, and the best information they have been able to obtain, they entertain doubts if the clover supposed by him to be altogether a new one, be such?—"The stalks," says Mr. Shepherd, in his letter to the Committee, "is very small, and when ready to cut for hay, the whole field looks like a cherry tree fully ripe. It never lodges; and nothing can exceed the beauty of the field when in full blossom; it is short and does not yield, the first cutting, so great a burden as the common clover, but in a season much more; it will remain in the ground, and yield a crop the third year, but perhaps it seeds itself partly—it will do two years. Being satisfied that the second crop would give seed before the first set in, I have this year made the second trial, with the most complete success, having obtained from the rowen clover nearly two hundred pounds of seed to the acre." It is understood by your Committee to be the general practice with the farmers in the states of Connecticut, New Hampshire, and some parts of Massachusetts, to procure their seed from the second crop of red clover. In Pennsylvania, says Dr. Mease, in his Domestic Encyclopedia, the Pratense, or common red clover, annually produces three or four crops for two years at least; the seed is collected both from the first and second crop, but principally from the former. Mr. Eliot wrote his Treatise on Husbandry, a work held in high reputation by all agriculturists, more than seventy years ago; he says, land in good heart will bear two crops of clover in a season, and recommends sowing the second crop for seed.

Claims for premiums were also exhibited to your committee by Thomas Shepherd, Esq. for having raised eighty seven bushels and 3-4ths of a bushel of Indian Corn, on one acre. Colonel Samuel Wright, of Westford, in the County of Middlesex, for having raised seventy-eight bushels and five quarts of Indian Corn, on one acre. Mr. John Dwyer, of Salem, for having raised five hundred and twenty bushels of Carrots on one acre; and on the like quantity of land, five hundred and eighteen and a half bushels of Potatoes.—And John Prince, Esq. for having raised the greatest quantity of Vegetables, (grain, peas & beans excepted,) for winter consumption of the stock on his own farm.

For raising the greatest quantity of parsnips, common beets, onions and dry peas,—for proving by actual experiment, the best season, and mode of laying down lands to the grass with r spring, summer, or fall sowing, being preferable, and with or without grain, on different soils,—for soiling cattle—for turning in green

crops as a manure—for the greatest quantity of good honey, and superior skill in the management of bees for the best mode of rearing, feeding, and fattening neat cattle—for the best sup fine flour, manufactured in the state of Massachusetts, from wheat raised in this State—no claims for premiums were made; these several objects are of great importance to the Agriculturists of this Commonwealth, and deserve, and the Committee hope will have their attention, in the coming year.

By order of the Committee,
THOS. L. WINTHROP, Chairman.
Boston, Dec. 22, 1821.

PREMIUM CROPS—BRIGHTON, MASSACHUSETTS.

P. rons.	Residence.	Premium.	Crops.	Acres.	Seed or Plants.	Yield.	Manure.	Culture.	Total Cost.
		Dollars.			Bu. Dist.	Tons. Bu. lbs.	Barus. Loads.	No. of Times Ploughed.	Dolls.
Parson Williams	Worcester Co.	20	Potatoes	1	27	550*			84
T. & H. Little	Essex	30	Corn	1	4 by 3 1/2 = 10890	105			39
do	do	20	Turnips	1	105 by 12 1/2 = 14520	7 1/2			2
John Prince	Norfolk	20	Mangel Wurtzel.	1	1 lb 3 by 12 1/2 = 44250	64 1/2			2
do	do	20	Flax & F bre	1 1/2		11	9		69
E. H. Derby	Essex	20	Cabbages	1	1 1/2	45 3/4	23		
D. & L. Little	do	20	Vegetables	1	4 1/2	1976—	4		
William Mears	do	20	Ruta Baga	1	4 1/2	688 1/2			
			White Beans	1		32			23

* Mr. Paxson also made 20 bushels Spring Wheat on an acre, — 1/2 of 54 lbs.— 1/2 of 56 pounds—this crop grew in an orchard.—† The greatest quantity for farm use.—‡ Harvested in 50 hours work.—§ also raised on one acre 530 bushels common Beets.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

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AGRICULTURE.

MR. PARKER'S COMMUNICATION,

To the Board of Managers of the New York Agricultural Society.

GENTLEMEN—The polite and flattering attention you were pleased to pay to my small exhibition of vegetables on the 29th May, was peculiarly gratifying; and in compliance with a request of your Honorable Board in a resolve passed that day, that I would furnish the Board with an account of my method of cultivation, of the quantity and kind of manure used, and any other information on the subject I might think useful to the Society, I have subjoined an account of my manner of cultivation, and of several experiments I have tried, the result of most of which has fully answered my expectation.

With regard to manure, hog dung is, undoubtedly, the best; I would next prefer a compost, the largest portion consisting of cow dung.

For the ordinary purposes of gardening, manure should always be provided the year before you wish to use it. Too much pains cannot be taken in the preservation of manure. It should be deposited in heaps, the larger the better. Care should be taken, if horse-dung, that you do not create too high a degree of fermentation; if you do, the strength will be greatly lessened, much of the nutritious part becoming so volatile as to pass off in the atmosphere.

To prevent this, a portion of cow dung, or loam should be mixed with it. The manure should have a coat of loam thrown upon it, and should be mixed or stirred twice, at least, before winter. Gardeners and farmers, in particular, sustain a greater loss than they imagine, by throwing their manure upon their lands, either into small heaps, or by spreading it and suffering it to so remain uncovered for several days.

If you expose cow-dung to the sun, it will soon become light and indissoluble as cork. That quality which enlivens and supports vegetation will be lost; and, when once lost, can never be restored.—Hence the necessity of economy in preserving manure; and there is not a single point relating to agriculture, wherein the farmer, in my opinion is less economical.

In regard to the preparation of the ground I would much prefer having it ploughed, or dug, in the fall season, and I would have it left in ridges, as much as possible. If land be left with an uneven surface, the atmosphere and the frost soften the soil and produce an effect peculiarly advantageous to vegetation.

I consider the harrow and the rake as deadly enemies to a light soil, where the ground is liable to be baked (as it is usually called) or cruste^d. Many people from a desire of having their gardens appear smooth and handsome, will rake the soil till it becomes as fine as flour. The first rain will smooth and consolidate the surface, and in six hours of sunshine a hard crust is formed, which, in the spring, while the sun's rays fall very obliquely, throws off their warmth and the ground beneath the crust is but little warmer at mid-day than at night. This effect is most sensibly felt early in the season; and, decreases as the season advances, till midsummer, when the cause ceases to operate. This crust not only checks the growth of vegetables by keeping the ground cold, but it cripples and deforms the tender plants, and many it entirely destroys. Whereas, an uneven surface is frequently changed and kept soft by the operation of the winds, the dews and the rains upon it. The small protuberances of earth are constantly crumbling and opening the way for the plants to shoot up; besides, as the rays of the sun warm only by being obstructed we may reasonably conclude

that a rough surface, where every lump of earth obstructs a ray, and which is porous, inviting the warmth, rather than repelling it, will be most congenial to the growth of early vegetables. An unevenness, that would deform the face of a garden, is not necessary. That which is formed by chopping in the seed with the corner of a hoe is all that is requisite. Experience has convinced me that the reasoning I have adopted is correct.

For some crops I would mix my manure with the soil in autumn, but for others I would not. As I intend to treat on my manner of raising each kind of vegetable separately, you will find my manner of preparing the ground for the several kinds under their respective heads.

To have good seed is an important point in gardening. By sowing that which is bad, the cultivator not only loses his labour, and the price of his seed, but frequently the opportunity of raising a crop.

To prevent disappointment and loss, care should be taken to select the most healthy plants for seed; and in gathering it, equal care should be taken to gather that only, which is of full size, rejecting all that grows on the inferior branches.

Seeds on the same plant are not always ripe at the same time, as the beet, carrot, parsnip, &c. &c.—There will frequently be a difference of weeks, yet people generally gather the whole at the same time. If, after the first, or centre branches are ripe, the weather be moist, the grain swells, and sometimes mildews. It afterwards shrinks, and if exposed to frequent changes in the weather, will become unhealthy, if not ruined. To remedy this evil, I would recommend to cut the centre stalks as soon as they come to maturity, the second best next, and so on. In this manner, the seed will be all fresh and good, and will all grow.

There has not been a solitary instance wherein seed of my own raising has failed.

As the importance of having good seed is great, I would submit to the consideration of the Board the propriety of attempting to effect an improvement in garden seeds.

SALAD.

I sow salad about the first of September, but as the seasons are very various, lest my first sowing should be too large, I sow at two or three different times.—

After manuring my ground abundantly, where I wish my salad to grow the succeeding spring, from the 1st to the 15th of October (sometimes later) I transplant my best roots, rejecting those that will not head, and those that spring from the seeds of the inferior branches.

The first are known by a peculiar form and complexion of the leaf, and the latter by their diminutive size. Without this precaution, one part of my garden would be filled with worthless plants, and another with those as various in size as the trees of a forest. But by adhering, strictly, to the method I have pointed out, plants will be perfectly uniform, and of the first quality.

At the commencement of winter, when the earth begins to freeze, I cover my salad. Care must be taken in the manner of covering them, or they will be destroyed by the means used for their preservation. They must not be too much confined, viz. pressed too closely by the covering, if they are, being full of juice, they will often rot. Unless I use boards, I make my covering of straw, that which absorbs least moisture, keeps them driest, and is of course best.

The main object in covering vegetables, is, to secure them from the wind and sun. They may be benefited by keeping them perfectly dry, but the rain will not destroy lettuce, if otherwise protected. The sun is very destructive to plants, when frozen unless of a hardy kind. Long stable manure makes a good

covering if not permitted to ferment, till used. The plants must not be uncovered too soon, in the spring. I formerly and frequently lost many by exposing them too early. The first warm days in spring, are often succeeded by severe cold, which is fatal to plants deprived of their covering. After a long confinement they are feeble, and cannot bear too sudden a transition. Let the covers remain till the weather be temperate; and then, by removing them gradually, the plants will regain their vigor and be earlier than those exposed more hastily. Last spring I uncovered my salad very early, and it being warm weather, I hoed it, and to admit the rays of the sun more readily, removed the earth from the body of the plants. In about three days, the weather became unusually severe, and destroyed all my best plants. I had not one better than the third quality that survived. This was, however, a fatal experiment, and is mentioned only as a preventive.

I have for two years treated my salad in the manner here described, and have seen none so early.

ONIONS.

It is generally supposed that Onions will not flourish in a light sandy soil, and I had been induced to fall in with the general opinion till lately, but experience has taught me to the contrary. Last fall about the middle of September, I sowed some onion seed; the autumn being remarkably dry, my plants were not larger than a common wire at the commencement of winter. In October I dug up my ground designed for Spring onions, and mixed with it a large quantity of manure. On the approach of winter, I covered my young onions with straw. The first warm days we had, in the Spring, I dug my ground lightly over and transplanted them. For several days there was no visible difference in my plants, as the weather was variable, and frequently excessively cold. They were, however, taking root, and as soon as the season for vegetation arrived, their growth was almost incredible. The onion requires either a moist soil, or a wet season. If sown in the Spring on a dry sod, before they attain their growth, we generally have dry hot weather and fail of a crop. Whereas, by sowing in the fall, the plants are ready to take their growth during the moisture of the Spring, and arrive to perfection before the drought of summer commences.

On the 17th of June I pulled Onions that were ripe and measured 7.34 inches in circumference. On the 19th I carried some to the market, which were acknowledged superior to any that had been seen there this season.

SPINNAGE.

This is a hardy plant and will grow in any soil and with any kind of treatment. From these circumstances Spinnage is more neglected in its cultivation, than most vegetables. Broad cast sowing is generally practised. The seed must be sown early in the fall. Grass springs up among it, and the fall rains beat upon the ground till it becomes quite hard.—The winter hardens the ground still more, and in the spring the plants are frequently choked with grass and weeds, and struggling with a hard and unyielding surface. No remedy can be applied. The manner of sowing prevents it. Though Spinnage will grow with such treatment, it is less luxuriant. Last fall, I sowed in drills and hoed it once. In the spring, I hoed it again, and my plants were superior to any I have ever seen. Many neglect to cover their Spinnage in winter, which I consider bad economy. It is little trouble to spread over it some straw, stable manure, which protects the crop while it softens and enriches the soil.

POTATOES.

As this species of vegetable constitutes an impor-

tant and profitable part of our food, and as it is a great luxury, very early in the season, any improvement in raising it, that will give us potatoes ten days sooner than the ordinary mode of cultivation, will, I conceive, be useful to the community. Sometime in the month of Feb. last, I took a bushel of potatoes, and after putting a layer of loam into a box, I put in a layer of potatoes, and then another layer of loam, and so on, till I had buried the whole bushel. I then placed my box in a warm part of my kitchen. In about a fortnight, they began to germinate. Being covered with a rich soil, the sprouts were very large and strong, and their growth very rapid till they were nearly an inch long. Their growth then, for several days, appeared to change its direction. I could see no difference in the length of the sprouts for some time, but from their roots a vast number of fibres shot out with great rapidity. When these fibres had extended themselves about half round the potatoe, on the 26th of March, I prepared my drills. I scattered a small quantity of compost manure along the bottom of the drill, I then cut each potatoe into two pieces, and placed them on the manure; I then scattered a small quantity of manure on each piece of potatoe. I saw a small quantity, because in raising early potatoes, I use but little, comparatively speaking. In most cases I use it very liberally. If potatoes be planted in a rich soil, or be manured highly the tops will grow very luxuriantly, but will continue so to grow too long for the benefit of an early crop—for the bottom section grows much till the top has nearly attained its height. I am fully convinced, that an inferior soil, with an ordinary quantity of manure, will yield an earlier crop than a very rich one. The manure used will be sufficient to warm and force the plant for a while, when, for want of strength of earth, its growth becomes less rapid, and then it begins to bottom.—Rich land will produce the largest crop, but it will be longer coming to maturity.

For potatoes, I consider vegetable manure, or a light compost, far preferable to any other.

On the 19th June, I carried potatoes to market, some of which measured 6 1/2 inches in circumference.

Notwithstanding my vegetables were very early, it is generally acknowledged that many, in fact most, of my neighbors have ten days the advantage in point of early soil. Mine is a heavy mould.

To discover some method of preparing my potatoes with less trouble to my family, I dug a whole in my garden about two feet deep. I filled it about half full of horse-dung, and put on it about two inches of earth. I then covered the place with boards. About two days after, when by the fermentation of the manure, the earth had become warm, I threw in a quantity of potatoes, and covered them with new earth. The potatoes sprouted quicker, and their growth was more rapid in this, than in the other experiment, and the convenience of this method will induce me to adopt it.

Great care must be taken that the sprouts be not broken or bruised. The drills must not be deep, and the potatoes must be covered slightly. In covering my seeds, for all my early crops, I have adopted a manner, I presume entirely new, which I shall particularly describe under the head of Peas.

PEAS.

I had a variety of methods recommended to me for raising early peas; and tried several at the expense of considerable trouble, as with the potato, but shall pass in silence all, except those that proved successful.—On the 9th of March, I planted two rows of peas in the north side of my garden, by the side of a tight fence. Next to the fence, I planted a row in the usual manner, covering them with a level surface. I planted the second row in the manner referred to in my observations on potatoes. In my early planting, I make all my drills run easterly and westerly; and when I cover my seed, I arrange the earth so as to form an inclined plane about two feet wide; my drill being the centre and the north side elevated about six inches above the south. This is done to bring the rays of the sun more directly, or rather

more perpendicularly upon the surface. The extra trouble of planting in this manner is merely nothing, and the benefit resulting from it is much greater than would be imagined by any one who had not tried the experiment. The weather after I planted my peas was unusually cold. On the 25th the peas were up in the second row, and on the 28th in the first row. Notwithstanding those next the fence had the advantage in situation, the others gained in time three days in no one article was I more successful than in peas, and should have given you other evidence of the fact, than my own declaration had I not been deceived by a report, that peas had been sold in market several days before there was one there.

BEANS.

If beans be planted early, there is no vegetable of common use, that requires more management. In a common soil, where there is little or no mixture of silix, they are very liable to rot before they germinate; and if they sprout, a storm, or cold weather, frequently destroys them before they break the ground. To prevent this, I prepare my drills, or hills in the usual way, then I cover the ground with coarse gravel, about half an inch thick. I lay my beans upon the gravel, and then cover them with the same about half an inch thick. In this manner, the seed is perfectly secure. Rainy and cold weather will only retard its growth. I have had them remain, by reason of unfavourable weather, three weeks, without the appearance of vegetation, and then come up vigorous and healthy. If the weather be dry and warm, this method of covering beans is much preferable to the usual one, for gravel acquires a greater degree of heat, than loam, and as the root of the plant extends into the moist earth, nothing is to be apprehended from drought.

CABBAGE.

The cultivation of the cabbage appears to me to be brought nearer perfection than vegetables in general. I can suggest nothing worthy of notice, except what relates to their preservation and protection from vermin. Early Spring cabbage should be sown from the 1st to the 12th September. If the plants be permitted to remain during the winter where they were sown, many of them will never head, but shoot up immediately for seed, after transplanting in the spring. Many "prick them out" in pits dug about two feet deep, and cover them. The dampness of the ground in this case, often causes them to mildew, which renders the method a hazardous one.—The best way, in my opinion, is to raise the ground about 18 inches in a warm part of the garden, by boxing round it. In this, "prick out" the plants, the latter part of October. They must be put into the earth so deep as to cover the stalk or body, and even the stems of the bottom leaves. If the stalk be left above the ground, its tegument, which is very tender, will be corroded, by the frost, and thereby the plant will become unhealthy. The design of raising the ground is to render it dry, and prevent the mildew. Cover the box so as to keep it secure from rain, and as free from frost as possible, without the risk of overheating the plants.

With cabbages, as with lettuce, be careful to uncover them gradually. In some seasons, particularly this summer, my cabbages have been literally covered with what are vulgarly called "cabbage lice"—The growth of all seemed to be impeded, and of many quite stopped.

I procured some seedlings of tobacco from the tobaccoists, which may be bought for two shillings per bushel. This being about 2 quarts, boiled in a gallon of water, and after boiling, was added to enough water to make the whole ten gallons.

I made a syringe, 2 feet long, and 1 inch in diameter. By means of this, I attempted to wet my plants with the tobacco juice. I found that the water was thrown with too much violence; that the small plants were injured by the shock, and that my liquid would soon be exhausted. I then made a leather cap for my syringe, through which I made 8 small holes with a common sewing needle. With this I could throw the water so that it would fall like a gentle shower or

mist. Though my cabbages were much curled with lice, in a few days, they were expanded, and the leaves became smooth and assumed the appearance of health. The trouble of cleansing them is very inconsiderable. A man can syringe as many in an hour as he can hoe, and by washing them once a day, for two or three days, the vermin will be destroyed. The morning, while the dew is on the plants, is the most favourable opportunity. The liquid will, then, spread upon the leaf, and a much less quantity will be sufficient; for, if operated upon, when perfectly dry, the water will roll from it as from an oil cloth.

BETTS, CARROTS AND PARSNIPS.

My ordinary method of preparing the ground for these roots is to spade it in the fall, mix it with a liberal supply of manure, and throw it into ridges.—In the spring, I dig it over, mixing a fresh supply of manure of the best and strongest kind. I make my drills, or rather dig the ground where the drills are made, very deep, being careful to mix manure to the bottom. My manner of planting the seed is the same as my improved method under the head of peas.

All parsnips should be planted as soon as possible, after the ground is free from frosts. Also, beets and carrots for summer use. But those designed for winter should be planted about the middle of June.—These do not attain their full growth, and are more delicate than those planted early. Reference is had as to the time of planting, only to those raised for the table. The first of May is a proper time to sow for stock. I plant two rows of carrots, or parsnips, about eight inches apart, I then leave a space of about fifteen inches; then two rows more, and so on, leaving a wide space after every two rows. I plant my beets in single rows, leaving a wide space between each. These roots, particularly the beet, occupy considerable space, and to gain it, must by their growth remove the earth from the place they occupy, thereby condensing it and making it very hard.

To loosen the earth and give room for the spread of the roots, I dig up the broad spaces, keeping the blade of my spade, unless a very narrow one, parallel with the drill, that I may not injure the small side roots.

WHEAT.

In the autumn of last year, I received some wheat sent to the Society from Wetteravia. I measured a rod square of ground, on which I sowed one and an half gill of seed. I sowed it in drills, and early in the spring I hoed it, very slightly, once. It was considered before harvest, by farmers, as very fine. What I gathered, after it was perfectly dry, measured one peck, three quarts, two gills and a half.

There were two circumstances that operated against my wheat; one local, and the other incidental. It was sown by the east side of a tight fence where the wheat was feeble and poorly filled to the distance of two feet from the fence. The other circumstance was that of a boy's entering my garden, in his play, and hiding himself in the centre of my wheat, at a time when it was beginning to fill.—These circumstances lessened the crop.

The grain is free for any gentleman of the society, who will sow with a view of disseminating it.

CORN.

For the production of good and early corn, the soil should be made very rich. I would recommend either for gardens or farms, that the ground should be dug or ploughed in autumn. Where the cultivator owns the soil, or has more than one crop in view, I would advise him to put on all his manure before ploughing; but, where he has only one in expectation, it will be for his interest to put the greatest part "into the hills." I spaded my ground for corn late in the fall, and mixed my manure with it.

About the 10th of April I planted three kinds of early corn, giving each a sameness of soil, situation, &c. One kind was a small yellow corn, which I received from Maine, about 30 miles north of Portland; one was a small kind of white corn, and the other kind was the yellow Sioux.

On the 12th July I carried corn to the market, which was the first that had been exhibited.

* A phrase used for temporary transplanting.

that from Maine was the earliest: the white was about four, and the Sioux about eight days later.—The two first are profitable only for the market, but the last, I conceive, will be of inestimable value to the northern part of this state and New England.—The 27th July, I gathered seed-corn from the small yellow, and the 31st from the other kinds; but the Sioux corn was not so dry when gathered as the first was. On the 29th June I planted some of the small yellow, where I had gathered a crop of peas, this season. On the 4th of September I gathered some of the corn for boiling, which was of good size and well filled, and sent a sample to one of the committee on vegetables. On the 23d of the same month I gathered some for seed, which was perfectly ripe. I have no doubt of the practicability of raising for the market, on the same ground, three crops in one season—viz: green peas, green corn and winter turnips.

My peas were all gathered ten days before I planted the corn; therefore, a week may be easily gained in the time, and that will bring the gathering of the corn to the 27th of August. The most convenient time of sowing the turnips would be when the corn was hoed the last time, say from the 1st to the 12th of August which would be sufficiently early for winter turnips. This mode of cultivation would be lucrative to the gardener, by giving him one extra crop, and it would, by means of the corn fodder, furnish one of the choicest kinds of food for stock, at a season when most wanted.

I received from a friend three kernels of corn, which were brought from the Council Bluffs, one of which came up and was very healthy. It produced two ears of a large size. As it was not uncommonly early, I could see nothing to recommend it except its size.

Before I quit the subject, I beg leave to suggest to the Board, the propriety of recommending to the particular notice of the north eastern section of the Union, the Yellow Sioux Corn. Almost the whole of their dependence for bread is on corn, and this to them would be doubly valuable. In the first place, it requires so short a time to bring it to maturity, that the farmer may plant it any time in June and reasonably expect a good harvest; and in the second place it is so large that the majority expect to harvest it before the corn is abundant. Perhaps it may be said that individual enterprise will disseminate it; I presume it will, but it will require years for individuals to accomplish what may be done by the Society in a few months.

There is no one circumstance relating to my garden, that contributes more to the growth of early vegetables, than my manner of hoeing it. I never fail to dress all my small vegetables, as soon as the ground is sufficiently dry, after every shower or storm of rain. The hoe, for which the board was pleased to adjudge me a premium last year, is admirably calculated to render the soil light and dry, and the facility with which it is used, enables me to dress my garden twice, while I would be doing it once with a common hoe. I plant every thing in drills for the convenience of hoeing, and never wait for the weeds to notify me to bring forward my hoe. There is a saving of time in dressing gardens frequently, and the benefit resulting from it is greater than imagined, particularly in the first part of the season. Where the ground is seldom stirred in the spring, it is cold and the growth of vegetation slow, but when frequently stirred it becomes dry and lively, and of course warm, and the verdure of the plants will rival that of summer.

N. CAROLINA AGRICULTURAL SOCIETY.

RALEIGH, Dec. 21.—On Saturday last this Society held its annual meeting at the State-House At which a committee was appointed to report on the objects and duties of the Society and on the most eligible means to be pursued by it to promote the interests of Agriculture throughout the State. After attending to the business before the meeting, it adjourned to Wednesday evening; when the committee reported, that it was desirable to promote the formation of Agricultural Societies in all the counties of the State, which should be auxiliary to this Society,

and be represented by a Delegate at every annual meeting, or report thereto; and that premiums should be offered for practical and useful Essays on subjects connected with agriculture and rural economy, which should be annually published. The Report being concurred with, a committee of selections and publication was appointed, and a premium of a Golden Medal or Silver Cup of the value of ten dollars, is offered for the best Essay on the production and application of Manures, having reference to the materials within our State, and suitable to our species of crops; and a like premium for the best method of reclaiming worn-out lands.

Several of the County Auxiliary Societies were offered as Auxiliaries to this Society, by gentlemen present who were members of them, and accepted; and a number of new members were received.

A Committee was appointed to revise the Constitution, so as to be in conformity with the above Report, which provides for three Vice-Presidents, instead of two; and Dr. Helme, of Johnston County is appointed to deliver an Address at the next annual meeting.

The Officers for the ensuing year were appointed; a list of which shall appear in a future paper.—*Reg.*

FROM THE PLOUGH BOY.

THE PATENT RAILWAY.

Is different from all others in being composed of one piece of timber, to support carriage and horse, requiring no road to be made. It is a combination of an iron and wood Railway. The strength is in the wood, and the iron lessens the friction. A plank about 20 feet long, 15 inches wide, and 3 thick, with grooves sunk near each side, into which a rod of round 3-8 inch rolled iron is confined, forms one length of the Railway.—The different pieces are connected together, and supported upon pieces of timber laid cross-ways, or can be elevated from 4 to 20 feet, by timbers set in the ground 4 feet deep, or noticed in a wood sill, and braced. Wagons to run on this Railway should have wheels of cast iron, with grooved rims, (similar to shives for ship's blocks) and hang very low; they cannot upset, as they can meet no obstruction. It is well fitted for removing dirt, in cutting down hills, digging canals, &c. On a small descent the wagon loaded would run itself, and by means of a rope bring up another carriage empty. Machinery can be made to unload the carriage. It is a great saving of trucking on wharves, where it can be laid fixed, for trucks to run over; or in joints of 6 feet, to be moved to any part of the wharf, so as to reach from a ship into a store, then have several wagons, one always ready to receive the goods as they come from the vessel, without touching the wharf; and if they require weighing, it can be done on the wagon, and then carried to the store.

The Honourable WILLIAM GRAY very liberally allowed the patentee to test its merits upon his wharf, where about 400 feet are laid down permanently; moveable circular joints can be added, to reach to vessels on each side of the wharf, a part of this *riser* at the rate of 175 feet per mile; a ton weight was drawn up this hill, and over two tons on a level part, with one hand.

Thus far it has been tested and proved, but it is the opinion of the patentee, that it can be an auxiliary (if not a substitute) for all large

roads and turnpikes, to travel and to carry goods. There will be no difficulty in crossing roads, the Railway can be carried over 15 feet high, to allow carriages to pass under, or it can pass level, secured by stout iron from injury by horses and wheels going over it, nor would it be clogged with mud. A pair of Railways are generally laid 2 feet apart, one for going and one for returning. The pair of railways require a width of but 7 feet of ground, once it can run on one side of a road or turnpike; or if elevated 10 feet (on posts) can pass over heads of grain without injuring the cultivation.

Hills present no formidable obstacles, the Railways can sometimes wind round the base, or if it is a narrow ridge, can be carried through level by tunneling, the expense would be small, an opening but 7 feet square being required; or a power on the top of the hill, (horse, team, or man,) would assist to draw up the load by an endless rope, &c. In a cold country, it should be protected from the snow and ice, by a rough covering of boards, (or house) seven feet high, and 7 feet wide.

A horse walking on the plank will draw ten carriages, each loaded with half a ton, and they are so arranged that the horse cannot see the width of the road, nor the height he may be from the ground, and he cannot step off.

A small steam engine in a wagon will drive itself along, and draw a stage coach after it at the rate of twenty miles per hour, with fifty passengers, the baggage being placed between, would protect the passengers from danger from the boiler's bursting—who, moving along smooth, could read or sleep, neither incommoded by mud in winter, or dust in summer.

A Fancy Coach is also made, in which persons can set and move themselves forward with very little exertion, by simply turning a crank; some persons have calculated they could go faster than a horse, farther in a day, and not harder work than to drive a dull one. These Coaches are made light, that a traveller overtaking a dull wagon, may step out, place his coach upon the other Railway, and pass by. *

(They are capable of great ornament, and would be a great acquisition to a country Seat; they can be made to run on the ground and to turn round; an excellent exercise for persons of sedentary habits, particularly.—Cost \$30.

Platforms are built every few miles to allow the slow wagons to run out, when the steam Coach passes by—to rest, unload, &c. The load being on a number of carriages, no great weight comes on one part at a time; a gripe pressing on the wheels, prevents the carriages from going down hill too fast.

Cast iron Railways are in general use in England for conveying coal, iron, lead, &c. to the shipping; also in the London docks for removing goods; steam carriages have run upon them. Some writers have urged their general use for travelling, but the great expense of them has prevented it; they usually cost \$3,000 per mile, laid single, on wood cross-pieces. The patent is better, will last as long, and costs but \$1500. Some engineers have considered Railways su-

* These Carriages can be seen in operation at Exhibition Hall, in Hanover-street, Boston.

perior to canals in many situations. Compare it with the Middlesex canal—Boatmen charge \$10 to carry a ton from Boston to Concord, 75 miles; on a Railway a horse and a driver would take a load of 5 tons there in three days, expense less than \$10, leaving a profit of \$40 on the load, for the owners, of the Railway.

Suppose a pair of these Railways was laid from Boston to Worcester, running over the *Cotting Avenue*, and on one side of the turnpike:—

The distance, (avoiding some hills) 40 miles	
\$5000, is	\$120,000
Cost of covering it the whole way, of	
rough boards, \$1250	50,000
Building a warehouse in Boston, one in	
Worcester, and three intermediate ones,	
to receive and deliver goods, cost	10,000
Extra expense in crossing valleys and	
hills, and building platforms,	10,000
For Superintendence, and Supernumeraries, allow	10,000
Total cost of the most expensive plan, \$200,000	

Annual Expense.

Toll to the Avenue and Turnpike, not over	\$2,000
Salary of Clerks, as Toll-Keepers, at warehouses,	3,000
Repairs would be trifling when housed, [allow]	3,000—\$8,000

Annual Income.

Toll on 10,000 tons of goods, and produce, at \$3	30,000
Toll on Steam Coach, with mail and passengers	3,000—\$33,000

which after deducting the expenses, leaves a net profit of \$25,000 to the proprietors of the Railway, or 12½ per cent interest.

A company to hire the Railways could afford to pay even a *greater toll* as one driver and horses will convey 5 tons to Worcester in two days, at an expense of \$5, which added to the toll of \$15, makes 20 total cost of load. The present price of carriage is from \$8 to \$10 per ton, but if this Company charge \$6 they will have a net profit of \$10 on each load.

When we consider the safety of carriage, no jolting and breaking, and the *expedition and cheapness*, we may reasonably calculate to engross the whole trade in a short time. Wagons should start at stated hours every day, if they had not a full load of goods, they could carry plaster, salt, iron, &c. and returning, could bring in wood, hay, (screwed in bundles,) potatoes, &c. from a greater distance than can be done on turnpikes.

In this view of the subject, the Railways would increase the value of distant lands more than the whole cost. Any persons can themselves ascertain the truth of these statements. There are more than 5,000 tons of plaster, salt, iron, flour, sugar, molasses, liquors, manufactures, &c. carried to that section of the country in one year, and as much produce brought down, in pork, liquors, butter, cheese, ashes, grain, manufactures, &c.

This plan is so novel, many persons think they see insurmountable difficulties, without understanding all the details. It cannot be

more *chimerical* than the Duke of Bridgewater's project, to carry his canal 3 miles *through a hill* by tunnelling, yet he completed it, and gained the most princely fortune in Great Britain, by an enterprise pronounced *ridiculous*, by the wiseacres of the age. A Fulton was ridiculed for his attempt to apply steam to boats. And those who pronounce, that horses *cannot walk on a plank*, must allow that steam *can and has been used*, and is considered as *cheap* as horses; true one wagon cannot get before another, but the laws of the Railway prevent one from stopping another, they all go at a fixed rate.

Some persons suppose Wagoners, or malicious persons, would injure the Railways, and persons would not dare to travel on it; a person bent on mischief, can never want an opportunity; he can remove the linch-pins of a wheel, or set fire to a house, but he is liable to punishment.

Turnpike Companies would be glad of their establishment, it takes from them their most unprofitable customers, that cut up their roads in Spring.

A Single Railway would answer to lay between Brunswick and Trenton, to carry passengers and light goods; the country is nearly level, it could be laid for \$75,000, (without covering) including the purchase of two small steam engines, and coaches to carry 100 passengers; there would be a platform half way, where they could pass each other, and replenish fire and water. The daily expense—estimate at \$5 for turnpike toll, \$15 for hire of men and cost of wood, \$5 for wear of engine, is \$25—allow an average of 50 passengers per day, both ways, at \$1.50 cts. is \$75, leaving a net profit of \$50 per day to the owners of the Railway. These engines could go slower, and carry goods, after they carried the passengers; the Company could buy land, instead of paying a toll to turnpikes.

In South Carolina, suppose a pair of Railways was laid from Charleston to Augusta, and a fork run to Columbia, in all 120 miles, cost \$400,000, a load of cotton would be carried in 5 days, instead of 30 by water; \$2 per bale would be readily paid for carriage, same proportion for rice, tobacco, &c. and \$25 per ton for carrying goods up; there is sufficient transportation to make the work very valuable.

By reference to the Encyclopedias, it will be seen the subject of Railways has engrossed much of the attention of the British nation.—They are important auxiliaries to large canals—diverging at right angles on either side, and bring to the boats produce over a rugged country, where canals could not be well formed; and in a cold country they could be used a longer time each year than canals, even if they were not covered in. That they are valuable at coal mines, stone quarries, &c. need not be mentioned; *there*, the strength might be increased, both in the timber and iron, if necessary. They would probably be useful in the navy and ship yards, for conveying timber, &c.

This plan is essentially different, and *much cheaper* than any other ever offered in Great Britain, or this country. There are many things to be attended to in the erection of the Railways, and using the carriages, which cannot

be particularly noticed in a circular, at the same time, any good mechanic can erect the whole, after one view; and it is easily kept in repair, from its *entire simplicity*.

Patent Rights are offered for sale, for a State, Town, or Special purpose; and further information will be given, by addressing a Letter, post paid, to

C. P. WILLIAMS.
New York Museum.

On Indian Corn.

FOR THE AMERICAN FARMER.

Sir,—In my last I endeavoured to enforce the great value of corn, and my opinion of the best method of planting. I do not pretend to say, that the mode pointed out by me, is that by which the largest quantity of this precious grain can be made, but we may purchase gold too dear, and that which may be a beautiful and productive tillage upon a few acres, with ample resources and small expenditures, is not to be placed in competition with our extensive fields, which although they do not receive all the good management of garden culture, yet produce an ample supply for family consumption, and an overplus for sale, to assist in supporting the hospitable propensity of a southern farmer.—I will not deny, that small farms well cultivated, will best support a dense population, but while the rage for emigrating to the west shall continue, we cannot expect a great increase of inhabitants in Maryland; and, indeed, it will be to me a serious and afflicting cause of regret, if I live to see our country seats deserted by their hospitable and polished owners, whose expanded minds and liberal habits require, and must have the ample resources, which a petty farm, under the best Turnip, Potato and Mangel Wurtzel husbandry, cannot supply. It is for extensive culture, that my remarks are made, believing that it is high time for us to adopt the most frugal and productive methods, when we are daily and hourly losing our servants—sometimes by direct stealing—most generally by seduction, and always by concealing and employing them; * and this too, under the sacred name of religion, by persons who reproaching us for our indolence, use the basest and most dishonest means to rob us of our labourers, that they also may be indolent.—If these overrighteous had applied to the fair and honourable purchase of young females, one half of the money which it has cost them to seduce & conceal these from the orphan, the widow, and kind master and mistress, they would have liberated four times the number of Africans, which their nefarious plans have as yet accomplished; and they would have avoided the cause of shedding so much human blood, justly attributed to their intolerant interference. Without being an advocate for slavery, I am an advocate for liberty of conscience,

* The Apostle Paul, did not conceal Onesimus, but sent him back to his master Philemon. He would not interfere with the conscience or property of Philemon.

that every man may freely enjoy his property, amenable to the laws of his country.

I know of no remedy for these encreasing and organized robberies, unless our legislature will make it a rebellion of manumission, that the slave manumitted, shall immediately remove, into one of the slave concealing states, and also banish all of our vagrant and worthless free blacks, who if they pass themselves as runaways, will find ready admission, protection and even support out of their poor funds. I say let these regulators of conscience have enough of them—the hundreds we can spare, and who would soon be replaced by valuable white labourers—But to proceed. I know no reason, why an active and intelligent man, may not as easily cultivate and improve one thousand, as fifty acres of land—a domestic man, not ashamed of, or above his business. To this man, my plan of growing corn is of importance, more especially as I do not contemplate what is called fallow wheat.

I have placed your corn in that form, which will greatly encrease the number of stalks, and as far as my experience goes, rather improving than diminishing the number and size of ears to each. It becomes, therefore, a subject for calculation as well as reflection, admitting that you do not grow as much wheat upon corn ground as upon fallow, whether the encreased wheat does not in various ways, cost more than it will profit. I am not convinced that corn is so injurious to land as is generally supposed; but this I do know, that the best wheat is that which is immediately joining, and next to the corn stalk—and I am fully convinced that the lands of Maryland; from which, since the first settlement of our country, every thing has been taken, and to which, in most cases little or nothing has been returned; independent of their natural great fertility, are indebted to the ridge tillage for their continued productiveness. On cold, stiff clays, the flat tillage is destructive, and even upon light loams, nothing is gained by it. At seven feet lands, we have a sufficiency of furrows to drain off superfluous wet—and with this advantage, that after a few crops you obtain the desirable level of your fields, which enables you to open permanent drains. If your land is hilly, there are furrows enough to prevent an accumulation of water, which would otherwise in seeking a vent, burst into a deep gully.

The favourite division into six fields, whereof one in corn and two in wheat, does not appear to be as beneficial a mode as four fields, one whereof in corn and wheat annually. The preparation of a fallow, is not a light labour, and you will admit that it is easier to manure a fourth than a third of a farm. I offer the following estimate upon 1000 acres of arable land.

Six field Tillage.

166 2-3 acres of corn, at four feet six inches, supposing two stalks to the hill, and 1 ear to the stalk, 100 ears to the bushel.

Bushels.

7170

Upon this corn ground, cut to pieces by water furrows—impoverished by cross ploughing, and by water retained at the crossings. I allowed 6 bushels wheat per acre. 1000

166 2-3 acres of fallow wheat, for which I will allow 15 bu. per acre. 1666

Corn at 50 cents, wheat at \$1, is \$6251

250 acres—and I shall hereafter show that by my method, you have really two stalks to a hill. 15,557

Upon this corn ground, with fewer water furrows & no cups, 7 bu. 1750

Which at same rate, is \$9528

Difference, \$3277

My estimates may appear wild, and perhaps I have committed errors of calculation—yet I have given sufficient room to come and go upon. My object is to show, that we do not work it right, and that by the cross tillage, we not only made less of wheat and corn, than by any other process, the same or less labour will produce, but by it we impoverish our soil, and that the 1-6th corn and 1-3d wheat, is not the most productive mode of farming.

Your obedient servant,

F.

Culture of Indian Corn.

To the Editor of the American Farmer.

December, 17, 1821.

Dear Sir—In perusing your paper the other day, which I always do at the first leisure moment I met with an article that particularly engaged my attention. It is contained in your paper of the 7th of this month, and relates to the culture and best distances for planting Indian Corn.

In regard to the necessity of clean cultivation and good tilth for this most valuable of all crops, I entirely concur with your worthy correspondent "F." But his opinion relative to distance, and the advantages of the particular one which he recommends, differs so materially from the prevalent opinions and practice in the middle counties of Virginia, where corn has long been the chief staple, that I think it may be useful to tell you what they are. I believe I may venture to assert, that with us, every distance which either whim or judicious calculation could suggest, has been fairly tried; and the practice has long settled down with a great majority of farmers in favour of five and a half feet each way, or 5½ and 5 where more than one stalk is left in a hill, and 5 one way, and 3½ 3. 2½ 2. and 18 inches the other way, where single stalk corn is preferred; the 5½ feet being the widest distance for every kind of land, and the narrow distances on the beds, being varied as above stated, according to the fertility of the soil. Shorter distances, such as 4½ feet, 4, 3½ and 3 each way, which have been known to succeed in the Western

country, and in more northern latitudes than ours, have often been tried with us, but without success. A wider distance, at least one way, seems indispensably necessary in our climate.

We all sow our wheat in corn land, which is very generally divided by a small water-furrow, into beds five and a half feet wide, and two of these making eleven feet every scytheman carries at one swath; nor have I heard for many years a single complaint of the width except from awkward beginners. Our wheat is cut as clean as I have ever seen it in any part of the United States, unless it has been on smooth fallow. Indeed our best scythemen assert, that they can cut much cleaner, where their arms have full scope, than where they are confined to swaths only 7 or 9 feet wide. They cut with two steps, and never catch their wheat as is probably the practice in your correspondent's neighbourhood; for I know it used to prevail in many parts of Maryland. For this mode, I will admit that a swath of 11 feet is too wide. The practice of cutting off the corn before we sow, is now becoming very common with us; and cross ploughing is getting more and more out of fashion:—skimmers, cultivators, harrows, and sweep-alls*, being substituted by many, instead of the plough, for the whole culture after the first breaking up.

I am, dear sir,

Your constant reader, and well wisher,

JAMES M. GARNETT.

* As this is a new implement I believe, the following description may be acceptable. It is nothing more than a broad thin bar of iron, 3 or 4 inches wide, and about 30 inches or 3 feet long; connected with a wooden frame at each end, by two iron uprights in such a manner, that the front edge of the bar which is made sharp, and well steeled, has nearly the same inclination to the surface of the earth, that a drawing-knife in operation, has to the board on which it acts. This edge then cuts every thing before it,—running from 2 to 3 inches below the surface.

FOR THE AMERICAN FARMER.

On Curing Bacon.

LOCUST LEVEL, Frederick }
Co., Dec. 30th, 1821. }

John S. Skinner, Esq.

Sir—I have observed in number 38 and vol. 3, of your American Farmer, a treatise on curing bacon-hams, &c. by John Darby, Esq. Richmond County, Virginia, whose treatise I consider the best I have ever seen in print, and probably as good as can be offered; nevertheless, as I differ with him as to the mode of applying the same ingredients, (sugar and molasses excepted which I deem an unnecessary expense,) I will inform you of the mode, which I have found the best that I have ever tried, in as concise a manner as I can to be intelligent, without comments, leaving the breed and size of hogs for a future examination. I first strike my pork down on planks laid sloping, (as Mr. Darby does) with fine Liverpool salt—after laying from 8 to 14 days, agreeable to the weather—longest of cold days—I re-salt it, having the salt well rubbed on the skin, and pack it in tubs made on purpose, being wider at

top than bottom, holding about 1000 lbs each; having previously prepared a strong brine, by boiling salt, (the alum I now prefer) with about two or three pounds of saltpetre, with twenty or thirty pods of red pepper for each tub of meat—while boiling, it requires frequent skimming, and when perfectly cold, I fill up the tubs, entirely covering the meat with it—about two weeks after, I have the meat taken out—re-boil the brine; add while boiling, about 1-3d lye, made strong from green hickory wood ashes, &c. a few more red peppers: skimming as before—when perfectly cold, it is applied over the meat again. In two weeks time, it will be ready for the smoke house, when it is taken out of the pickle, wiped clean and hung up, back downwards. No smoke is applied the first day, unless very cold weather—when commence smoking with green hickory wood. Fearing it might be alleged that it would overheat the meat, I will give a short description of my smoke house. My meat is hung in the upper story of a small building: the lower story intended for servants, the upper floor being covered with clay mortar to repel the heat downwards, and prevent fire above—below, is a small ten plate stove, whose pipe ascends one foot above the floor—some bricks are piled round the pipe above, and about one foot higher, on which an old stove plate is laid, to spread the smoke and prevent fire above. The stove keeps the occupants below comfortable, (who seldom neglect the fire in cold weather), and fully answers smoking my meat; there being no aperture in the floor, except where the pipe goes, they have no access, the meat house door being in the wall of the second story. When perfectly smoked, the hams and shoulders are packed again in the tubs, with as coarse salt as I can obtain—from whence it is used—comes out clean—when packed with ashes it is otherwise. I have also cured them with the first brine, with lye in it, but thought the lye penetrated too deep, though they kept remarkably well.

Mr. Skinner—I hope that our agricultural society will award premiums for the best cured hams, which shall be exhibited at our future cattle shows—believing it as essentially beneficial as for good hogs, (for then the members might have the pleasure of feasting on them); and I'll venture to assert, they would be treated with as good hams of bacon, as ever came from Burlington, Westphalia, or any another part of this globe, from

Your friend,

and very humble servant,

JOHN HUGHES.

Buckwheat Cakes.

For the American Farmer.

Dear Sir—Among the number of recipes in your useful paper, allow me to add the following, perhaps not generally known.

The batter of buckwheat frequently suffers from being made over night, and the housekeeper is disappointed in having good cakes. To remedy this evil, add a little powdered mag-

nesia, which will be found to correct it entirely, if added fifteen minutes before baking.

A SUBSCRIBER.

Some Observations on the Disease of the Morello Cherry, and Management of Trees.

Read before the Agricultural Society of Bucks County, 30th July, and before the Philadelphia Society for promoting Agriculture, Oct. 23, 1821.

Sharon, Bucks County, Pennsylv.
vania, 4th July, 1821. S

Sir—The premature decay of our trees, particularly those of the fruit bearing kinds, is indeed a matter of serious regret, and demands our pointed attention. I hope that the important committee over which you preside, will, in their researches, make some discoveries that may prove of peculiar benefit to society. I consider it a privilege to belong to such a committee, and will most cheerfully throw in my little store of knowledge.

In most cases of decay that have come under my notice, I have found a collection of some kind of vermin, which I suppose to be the cause of disease; but on a more close examination I am of opinion, that in some instances it is only the consequence, especially as relates to the morello cherry. The disease which has proved so fatal to that tree, is first observed by the formation of excrescences in the outer branches, and even in the stems of very young trees. In these excrescences are lodged a number of small whitish worms, which I took to be, and I believe many others think is, the cause of the decay; but being informed that scoring the bark was useful, and the informer being unable to give me any reason why it was so, I was induced to look further into the case, whereupon I discovered, that the lumps or excrescences were formed about a month before the worms commenced their operations, and then they appeared to enter from the outside. Last year I selected for experiment two trees that stood near to each other: early in March I scored one of them, by making three incisions along the trunk, extending from the branches to near the root; the other I left undone. In the spring of the current year, that which was scored was free of disease: whilst that not scored was so affected that I thought it necessary to take the whole head off. Joshua Tyson, esq. of Montgomery county, has a tree of the large brown species, the trunk of which is about thirteen inches in diameter; it became much diseased in the year 1819; in the course of that year the bark opened along the trunk in a perpendicular direction, about six feet in length as it had been scored; in 1820, the tree threw out new shoots from below the diseased parts, and assumed a healthy appearance, and during that year a ridge formed where the bark had been opened, jutting out an inch beyond the general round of the body; and in consequence of the tender state of the bark in that part, the ridge has this year increased, and it does appear that it will continue to do so, until relieved in other places by incisions. On

another examination of the excrescences this season, I found the eggs of the insect laid on the outside, and that the worm does actually make its way inwards. From these observations, I conclude that the decay of this valuable fruit tree is occasioned by a diseased state of the bark (being what is commonly termed bark-bound, obstructing the circulation of the sap), and that scoring at the proper season is an effectual remedy; at least it is harmless and easy. Whether I have chosen the best time for the operation remains to be proven; and if I am in the main right in my conclusion, it is a strong instance of the necessity of searching into causes, instead of being misled by mere effects.

It appears to me that the practice of trimming trees, so as to form the head several feet above the ground, is unnatural, although it is certainly attended with many conveniences, and on some occasions cannot be dispensed with, particularly where the ground is tilted; but such exposure of the stem is perhaps frequently the source of disease, especially in some of the delicate kinds of fruits, such as cherry, plum, peach, &c. I have now some peach trees growing on the north side of a board fence, which really look more flourishing than some others that are not so protected, and from this hint I would suggest the propriety of suffering the head to form so near the ground as to shade the whole stem; or if trimmed up, to place a board, or tie straw or some other covering on the south side of each tree. The application of soft soap, well scrubbed with a hard brush, has lately been highly spoken of; and the washing with lime or composition has long been practised; and also scraping and currying the bark; all of which I believe to be useful, but each in rotation, or some change is probably best. A respectable member of our society has recommended the ringing or girdling of fruit trees, to force them into bearing. I have tried the experiment, and am satisfied that fruit was thereby produced. At the same time I am convinced that the trees are injured, and must therefore disapprove of the operation, and in lieu thereof I would decidedly prefer scoring, that is by making incisions into the bark lengthwise up the trunk, continuing if necessary along the principal branches.

In planting trees I would recommend your digging the holes of a size more than sufficient to receive the roots (the larger the better), but not too deep, especially if the soil is shallow and the subsoil clay; the earth thrown in should be completely pulverized and enriched, and if in the spring season, about half a bucket of water to each tree is very beneficial. After planting the more valuable or delicate kinds, I have thrown straw, leaves, or other litter around with great success; the litter keeps a continual moisture, prevents the growth of other plants, and acts as a manure; but it should not be continued longer than autumn, as there would be danger of mice harbouring in it and barking the trees. Some persons stake their trees at the time of planting, and I think well of the practice for the first season; but the stakes should be removed by winter, otherwise the stem, either depending upon the support afforded by the

stake, or for want of proper exercise, will not grow in proportion to the other parts, and will become too weak to sustain the head; for trees have an apparent consciousness, and will conform to the situation in which they are placed.

Yours, very respectfully,

JAMES WORTH.
Mr. JAMES P. MORRIS, Chairman of the
Committee on Fruit and Forest Trees.

For the *American Farmer*.

MR. SKINNER,

Besides the good effects that are to result at our Cattle Shows, from the offer of premiums for good Stock, there are other points that require not less the attention of your premium committee. Among these are ploughing matches for oxen: Domestic Manufactures—I mean those that are strictly domestic, such as are wrought in our families, and the offer of a premium of valuable amount, for the best treatise on agriculture either in the shape of an address, or any other form, that may be offered to the Society, which shall point out the errors and defects of Maryland farming, and shall suggest therefor the best remedies. We have had no writer in Maryland on the subject, since Bordy, who has given any thing in the form of a treatise on the subject. There is nothing at this time, in my humble opinion, that is more required to aid the good cause in which we are engaged than this. Perhaps the subject may not require the offer of a premium more than once. But in this, as in all other points, the premium should not be awarded where the thing offered, does not appear to merit it.

December 21st, 1821.

ENQUIRER.

Maryland Cattle Show and Fair.

At a meeting of the Committee of Arrangement, on behalf of the Maryland Agricultural Society, at the dwelling of the Chairman, General CHARLES RINGOLD, of Hampton, it was resolved to distribute Premiums, consisting of pieces of Silver Plate, amounting in value to \$500, at the Cattle Show and Fair, to be held on the last THURSDAY and FRIDAY in May next at the Maryland Tavern on the Fredericktown Turnpike Road, four miles from Baltimore.

- 1.—LIVE STOCK.
- Horses.
- For the best Stallion, a piece of plate valued at \$30
Second best, do. 20
For the best brood Mare,
Second best, do. 10
- Asses.
- For the best Jack, 20
For the best Jennet, 10
- Mules.
- For the best Mule, 20
Second best Mule, 10
- 2.—CATTLE.
- For the best Bull over two years old,
Second best, do, do. 25
For the best Milch Cow,
Second best, do. 20
For the best yoke of working Oxen,
Second best do, do. 15
For the best Bull under two years old,
Second best do, do. 10
For the best Heifer,
Second best do. 10

- 3.—SWINE.
- For the best Boar, 10
Second best do. 5
For the best Sow, 10
Second best do. 5
- 4.—SHEEP.
- For the best Ram of the pure Merino blood, 10
For the best Ram of any other breed, 5
For the second best Ram of any other breed, 5
For the best two Merino Ewes, 10
For the best two Ewes of any other breed, 10
- IMPLEMENTS OF HUSBANDRY.
- For the best Plow, 5
For the best Straw Cutter, 5
For the best Drill Machine, 5
For the best Machine, or model of a Machine, 20
for preparing unwretted flax for the wheel.
- Where premiums are taken for any of the above implements—the implement itself, so taking the premium, or a model of it, must be stamped with the name of the owner, and left in the possession of the Society, for public exhibition. Eleven premiums, amounting to one hundred dollars, will be reserved to be distributed at the discretion of the Society, to wit: One valued at \$20; two ditto \$15; two at \$10, and six at \$5.
- The Committee of Arrangement, take this occasion to notify the Agricultural Community, that the Society have it in contemplation to hold another Cattle Show and Fair, in the month of October next, when they hope that it will be in their power to award Premiums for crops, and for Manufactures wrought in private families.
- It is expected that from and after October next, the exhibitions will be held in that month and only once a year
- As some of the crops, to which it is thought to be expedient to call the public attention in this state, must necessarily be sowed or planted, prior to the meeting in May; the Committee of Arrangement, deem it advisable at this time to indicate, in general terms, the objects for which it is supposed the Premiums will be offered, leaving the details to be published as soon as practicable after the next show.
- For the best ½ acre of Carrots.
do ½ acre of Mangel Wurtzel.
do ½ acre of Potatoes.
do ¼ acre of Onions.
do ½ acre of Cabbage, for feeding stock.
do ½ acre of Rutabaga.
do ½ acre of Common Turnips.
do ½ acre of Indian Corn.
do ½ acre of Orchard Grass.
do ½ acre of Pumpkins.
do ½ acre of Flax.
do ½ acre of Wheat, do Rye, do Barley, do Oats.
- The persons who shall compete for the premiums that may be offered for crops, will have to give a description of the soil on which the crops grew, state the kind and quantity of manure used; and also the manner and expense of cultivation and harvesting.
- The premium offered for the best Milch Cow, will not be bestowed unless the owner exhibits to the satisfaction of the Awarding Committee, an accurate account of the food and treatment of the Cow; the quantity and management of the milk, and the quantity of cream and butter previously obtained from it for at least thirty successive days.
- No animal will be considered entitled to any of the regular premiums, except such as have been bred in, and are at the time owned by persons residing within this State or the District of Columbia—and in no case will a premium be given for live stock, unless the owner shall have given one week's previous notice in writing, to Mr. John S. Skinner, Postmaster of Baltimore, stating himself to be the owner of the animal, and the manner of feeding and rearing it, together with its pedigree, &c. &c. as nearly as practicable.
- CHARLES RIDGELY, of Hampton,
Chairman.
J. E. HOWARD, Jr. Secretary.
- All Editors of newspapers in this state and in the District of Columbia, are respectfully requested to copy the above.

Editorial Correspondence.

TOBACCO FLEA, OR FLY.

Extract—Staunton, Virg. Dec. 25th, 1821.

I have taken notice of a great deal having been said in the first volume of the Am. Farmer, about the small flea, skipping fly, which is so destructive on young plants. I have for the last 14 years used ambler (tobacco juice) with complete success on various kinds of plants, and particularly on cabbage plants) ten or three pounds of leaf tobacco is sufficient to protect thousands of plants from their ravages. I boil the tobacco until all its strength mixes with the water; say a pound or thereabouts to a gallon of water, and with a common watering pot just as the plants begin to chip through the ground I sprinkle the beds and repeat it after every rain until they are large enough to protect themselves. I know nothing about the cultivation of tobacco, but am confident if used in time this application will protect that as well as other plants.

A. S.

In answer to Inquiries from the Editor respecting Albany Peas.

ALBANY, December 28, 1821.

Dear Sir,—Peas are best raised as a fallow crop to precede wheat. Both do well upon the same soil. The ground is usually of clay or stiff loam, should be ploughed in the fall, and the peas sown broadcast, two bushels per acre, early in the spring, and harrowed in. If ground is employed which has been cropped the preceding year, it requires the same preparation which is given for oats or barley. Neither yard manures nor Gypsum are advantageously applied to peas, as they cause the crop to grow too much to vines. They are cut with a scythe—gathered in small heaps, and suffered to lay a day or two, that the haulm may dry and the whole crop ripen. The average product is about one third greater than that of wheat upon the same soil.

The application of this crop is various. It is principally used in fattening hogs, before corn harvest. In some cases the swine are turned into the field, where they are permitted to consume the whole crop; in others, the vines are stacked near the hog yard, and fed out twice or thrice a day. And in other cases again, the peas are threshed and ground, or steamed with potatoes or pumpkins. The advantages of the first mode are, that the vines afford much succulent food, the whole of the unripe peas are eaten; nothing is wasted, and the expense of harvesting and threshing is saved. This, notwithstanding, is deemed bad husbandry; and the other modes are generally preferred. When this crop is destined wholly for the stock on the farm, three pecks or a bushel of oats are sown on each acre with the peas. The oats support the pea vines, without materially lessening the crop, and both ground together, afford an excellent provender for all kinds of cattle, as well as swine.

The seeds forwarded to you, are the marrow fat and green pea. They are perhaps not so

productive as some other kinds, although they are deemed the best for family use. Our favorite way of eating them, when dry, is in the form of soup. They are boiled in soft water with pork, until perfectly soft. They are then passed through a fine sieve, or coarse cloth, and the skins wholly separated—then boiled down to a proper consistence, and seasoned to suit the taste.

I have three years in succession made Indian corn my fallow crop, and am confirmed in its utility. I plant an early kind, which I have gathered the first 14 days in September, by cutting the whole at the surface of the ground. The hills are then split, the ground ploughed once, harrowed, sown, and the seed harrowed in, both ways. My manure, in an unfermented state, is applied to the corn ground, which is generally a clover lay or sod, in liberal quantities, spread as it is ploughed in, a heavy roller passed over the ground, and immediately planted at the distance of two and a half by three feet, and three stocks left to grow in a hill. In tilling the crop, I hill but slightly, and endeavor to leave the sod unbroken by the plough or hoe. By this process the whole of the manure is saved; and after giving nutriment to the corn, it is precisely fitted in September, as well as the sod, to become proper manure for the wheat crop. I either follow the wheat with grass or turnips; in which latter case, the stubble is once ploughed as soon as the grain is off; turnip seed sown and harrowed in. In this way of management, I have raised 90 bushels of corn, 39 of wheat, and 250 of turnips, on an acre of ground, in eighteen months. I have a very promising crop of wheat on the ground, where I raised my corn last summer; part of it is stocked with Timothy, and three acres are reserved for flat turnips, to be sown as soon as the wheat is harvested.

I have remarked one fact worthy of further investigation. In a field where I sowed a new kind of wheat, but which did not come up, having lost the power of vegetation, considerable rye made its appearance in the spring, which induced me to preserve it for the crop which it promised. The seed of this rye was taken out with the manure. But when nearly fit for cutting, I found there was scarcely a head but what was affected with *ergot*. While in my rye field, of 6 or 8 acres, not 200 rods from it, I do not remember to have seen a particle of this vegetable poison. The seed sown in the field was steeped several days in a strong brine, and rolled in lime, a precaution which I adopt with all my seed grain. Is the *ergot* propagated like smut? and did the salt and lime destroy it in the seed sown? I should like to see this thing explained.

But what has tended to puzzle me the more, is the fact, that the spear grass, or green grass, *Poa Viridis*, which grew in detached bunches where it had sprung up spontaneously, was observed to abound with *ergot*, while on that which grew in the meadows none was observed.

Since I last wrote you, I have had my doubts solved as to the identity of Timothy and herls-grass. The latter is a spontaneous growth in our wet lands, and is known by the name of

Flow Meadow, the *white top* and *red top* being different varieties.

I sent you a small parcel of *lentils*. Have you received them?

I want to obtain some of the *tall meadow oat grass* seed, which is raised in the middle states, and chickory. I suspect these are better adapted to this climate than Sanfoin and Lucerne.—The latter is peculiarly adapted for soiling, and is admirably calculated to stand the drought and frost.

I am, Dear Sir,

Your obedient servant,

J. BUEL.

J. S. SKINNER, Esq.

[COMMUNICATED.]

Recipes for the DYSENTERY—An Indian Remedy.

Take the root of Cattail, (a flag) bruise and boil it in sweet milk, and let the person affected, sup it warm or cold.

It is a harmless medicine, and a sucking child may use it without injury. It is best to let the disease continue a few days before the root is used, or else a purge must be taken. If the person is far gone, one spoonful will be enough every hour the first day, and more the next. No meat ought to be used, but ripe fruit is beneficial.

An Indian Recipe.

Of the roots of the low running Blackberry, or Dewberry—made a strong decoction or tea, and let the patient drink three tea cups full, milk warm, and during the operation, drink plentifully of water. It operates as a gentle purge.

POETRY.

The Washington Bonnet,

Respectfully dedicated to the Agricultural Society of New-York, by Samuel Woodworth.

AIR—THE OLD OAKEN BUCKET.

The bard who so often has sung INDEPENDENCE,
And wakened his lyre to the praise of the brave,
Now hails a new spirit among their descendants,
Imparted from heaven that blessing to save,
The delicate white-fingered hands of our lasses
Have opened the era their virtues adorn,
By making alone from American grasses
A delicate bonnet that rivals Leghorn:
A pretty grass bonnet, a dear NATIVE bonnet,
The WASHINGTON bonnet that rivals Leghorn.

No foreign intrigues can now disaffect us,
Since we can oppose them with courage and wit,
Our masculine valor has made them respect us,
Our feminine genius will make them submit.
No more shall we send our eagles and dollars,
Our fair from our soil can their persons adorn,
With necklaces, bracelets, and corsets, and collars,
And delicate bonnets that rival Leghorn;
A pretty grass bonnet, a dear NATIVE bonnet,
The WASHINGTON bonnet that rivals Leghorn.

Then hail to the arts that secure independence,
And draw our resources from Liberty's soil,
Our national banner that derives new resplendence
From feminine genius and masculine toil.
Our valor shall teach all the world to respect it,
Though some have affected that valor to scorn,
And Amazon damsels have armed to protect it,
With helmets or bonnets that rival Leghorn;
A pretty grass bonnet, a dear native bonnet,
The WASHINGTON bonnet that rivals Leghorn.

HOLLIN HALL, January 5th, 1822.
Sir—I will thank you to give the subjoined advertisement, a few insertions in the American Farmer.

And oblige, your's respectfully,
GEORGE W. MASON.

Mr. John S. Skinner,
Baltimore.

VALUABLE PROPERTY

For Sale.

The subscriber being desirous of removing to the Western Country, offers for sale, the tract of Land on which he resides, in Fairfax County, Virginia, containing about 740 acres, five miles below Alexandria, and within one mile of Potomack River, in an agreeable neighbourhood—the situation pleasant and remarkably healthy—the land level and well adapted to the production of Indian Corn, Wheat and other small grain. The improvements are a large and commodious dwelling house, two stories high, 54 feet long and 34 feet wide, with four rooms and a passage on a floor; a portico on each front, the full length of the house, and an excellent cellar under the whole house, divided into four rooms—A good kitchen, meat house, dairy, ice house, and every other necessary building; all in good repair, with a well of excellent water—A good garden, apple and peach orchard, and about 40 acres of excellent Timothy meadow, and as much more may be made at a very small expense. Also an Overseer's house, Negro quarters, a granary, corn house, stables, &c. &c. For terms apply to the subscriber, five miles below Alexandria.

GEORGE W. MASON.

January 5th, 1822.

MULES FOR SALE.

For sale a pair of fine young mules, one, 2 years, the other 3 year - old last Spring. To save the trouble of enquiry on that point, the price is \$60 each.—For any other particulars, enquire of the Editor.

Flax Machines, &c.

HARRISON & TORREY,

At the Agricultural Repository, New-York,
have for sale,

Bundy's new patent Flax Machine, with directions for bleaching the flax, \$15
If five or more are ordered, \$12 each
A sample of flax may be seen at the office of the American Farmer, that was dressed in this machine.
Blakely's Inverted Horse Hoe—invaluable at the south—very light and easy of draught—can be set from 8 to 36 inches, \$15
Amos' Expanding ditto, 15
World's Hand Mill, contained in a box about a foot square, with two set of extra plates 40
Burden's Box Churns
Angled Harrows, double or single, with patent Teeth, 8 to 20
Beaton's Scarifiers, 15
Ploughs of all kinds—as Freeborn's and Harrison's patent—the Scotch, iron and wood, ditto, from 6 to 40
Bennet's Grass Machine, 1
Patent Corn Shellers, in iron & wood frames, 15 to 20
Lactometers, Dynameters, &c.
The Scotch and English Friction Machines, for Threshing with or without horse power, made to order.
Chaff Cutters, from 3 to 75
And every improved Agricultural Implement.

Printed every Friday at \$4 per annum, for JOHN S. SKINNER, Editor, by Joseph Robinson, at the N. E. corner of Market and Belvidere-streets, Baltimore, where every description of book and Job Printing is executed—Orders from a distance for Binding, with proper directions, promptly attended to.

A M E R I C A N F A R M E R .

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL III

BALTIMORE, FRIDAY, JANUARY 25, 1822.

NUM 44.

AGRICULTURE.

ADDRESS

Delivered by JOHN DAVIS, Esq. of Augusta, before the Members of the AGRICULTURAL SOCIETY OF MAINE, at their Annual Meeting, on October 31, 1821; being the day of their Shew of Cattle, &c. then held at HALLOWELL.

The occupations of the President of this Society, though they have assumed a new shape, have again deprived us of the pleasure of listening to that Address from him at our Annual meeting, which the rules of our Society might otherwise lead us to expect.—This appears, however to be the only good office in our favor, when our President seems willing to omit, as is again made manifest by his attendance among us to preside at an Annual Meeting, the second which has been held at this place.

In consequence of the state of things here referred to, the Committee of Publications has been a second time charged with the appointment of a sub-committee, to prepare an Annual Address to the Society; and I am requested to deliver to this assembly that of the present year.

As the Address delivered here the last year was designed to demonstrate the Importance of Agriculture to a State circumstanced like Maine, it is in proper connexion with that Address, that we should notice on the present occasion, *various methods by which its importance can best be promoted.* Since that part of our subject however will be passed over, which is *purely* Agricultural; we shall merely have to consider some of the modes of preparing our farmers for their important profession; and also the means by which they can best obtain assistance in their pursuit of it.

1st. Then, our farmers ought to possess diligence, economy, neatness, method, and a love of carrying things to their true point of perfection; together with certain well known principles of morality. It happens fortunately for those intended for the occupation of farmers in this country, that while young, they are generally placed upon farms so extensive, as to keep the families upon them distinct from each other, and consequently within the reach of some control. Here it is then, that the above habits and principles may easily be enforced upon the young farmer, and be joined to domestic feelings and to a sense of religion; upon which pillars the characters best capable of a sound conduct may in most cases be expected to be found.

2d. The next requisite for a farmer is *information.* By information, we do not mean they separate from experience; for every intelligent farmer when settling in a new neighborhood, ought at first to keep his eye on the practice of the inhabitants who are most successful in the management of their farms; till he has attained a local experience of his own. Formerly, diligence and economy made the chief dependence of the husbandman; but so many secrets of art and nature are now laid open to view, and so many other helps offer themselves to him in our day, that if he does not avail himself of some of these advantages, rivals will soon out-strip him.

Farmers however must in general be content with practical knowledge. Their experiments should be few and of a limited nature; and they must learn as much as they can from the experiments of others, for these cost them nothing.—"The poor especially should be cautious; for in poverty, as in the conduct of war, there is seldom room for a second grand mistake.

* Felix quem faciunt aliena pericula cautum.

But the worst difficulty respecting agricultural knowledge is, that it is hard to obtain it in a short time in a form suited for immediate use.

3d. Some methods for obtaining and for circulating knowledge shall therefore be mentioned.

First, a liberal premium may be offered for the composition of a short and interesting treatise on the practical part of the Agriculture fitted for Maine; and another premium for a like treatise, teaching the general principles of Agriculture.—Next a periodical publication may be set on foot, under the direction of the Committee of publications, and be confined to agricultural subjects; similar to those journals now so frequent in the civilized world, in the case of other branches of knowledge; and this will serve as a channel for the communications of Agriculturists with each other. Again, an agricultural Library is required both for readers and for writers on husbandry.—The directors of the social libraries throughout the country should also be invited, (where this is not done already) to make their purchases of Agricultural books, as extensive as their readers will permit.—Lastly, price questions (such as are contemplated by the constitution of our Society,) on subjects of husbandry, should be brought forward as soon as the finances of the Society can support the charge.—But perhaps of all these projects, that of procuring the immediate composition of two treatises on Agriculture, divided as above mentioned, is the most important. (a)

4th. The next article which is to be named, might have been classed under the preceding head, did not its importance claim for it a separate consideration; we mean, a *professorship of Agriculture.*—This professorship may be placed at a College; but must be open to the attendance of strangers; who, at the same time that they are pursuing this course of lectures may under certain conditions be permitted to attend such other lectures, as may be beneficial to their great pursuit.—It is obvious that as these lectures will chiefly regard principles, they may not be suited to the generality of farmers; nevertheless from the practice of those who will have attended them, something may be learned which shall be useful to farmers generally throughout the country.—These lectures will differ from the two treatises mentioned above in their being more extensive as well as in being accompanied with experiments and the exhibition of models.

How this professor is to be compensated for his labors supposing the fees from his pupils to be insufficient, will be mentioned hereafter.

5th. Another mode for advancing Agriculture is to support Societies like our own; but on this subject we need not dwell before this respectable assembly, since it is now collected here in consequence of a conviction of this important truth.

6th. But we must speak more at length of what are called *Cattle Shows*; for which the name of *Agricultural Exhibitions* would apparently have been more appropriate, comprehensive and respectable.

We shall recite some of the good tendencies of these institutions.—They manifest in a single view to every farmer, what can be done by the best of their profession; they lead not only to the imitation of what is exhibited, but to attempts at higher excellence; they offer the immediate means for the improvement of the stock, crops, tools, and machines of the farmer; they give to our farming animals a better

chance of escaping cruelty and neglect, by rendering them more valuable in their qualities and more respectable in their appearance; they demonstrate the attachment felt for agriculture by all ranks of the community; they make Agriculturists from different parts of the country acquainted with each other, in order that they may profit by the mutual communication of knowledge and friendly services; like great national festivals, they bring together annually many other persons of all descriptions, and thus serve as a new link to society; under cover of them also, other interesting articles may be displayed to public notice; they promise gradually to present us the advantages of a public fair, (on the principle of those known in Europe,) at which all may buy, sell, and barter agricultural articles, and by means of samples enter upon still more important bargains; and they offer a gratification to the feelings of many, which is not only free from danger and crime, but may be accompanied by profit, as well as enlarge the ideas and therefore elevate the aims of the spectator. These institutions have accordingly rapidly spread in this country, since they were first a few years ago introduced from England into Massachusetts; and have had their objects extended; they are growing in favor wherever they have been tried; unless where they have interfered with each other, from being placed too near together.

These institutions promise also to be durable.—The games in Greece called *Olympic Games*, *** did not finally close their career, till near twelve centuries after their first institution. (b)

If common sense were to decide us in our estimate of the comparative value of Institutions like that which we are celebrating, and those of the ancients; we might safely assert that our *Agricultural Exhibitions* are, for our purposes at least, far more useful than the public games of the Greeks; and they are certainly far more innocent than the public shows of the Romans, which in truth were wantonly cruel, and in some cases expressly designed to extinguish in the spectators the feelings of humanity. (c) Differences, doubtless ow-

(b) Dr. Burney in his History of Music, says, that "in the year 77, before Christ, the Olympic games first began to be regularly celebrated once in fifty-two months, or on the second month after the expiration of four years; and to serve as epochs to all Greece," [under the name of Olympiads.] And again he relates, that "the Olympic games, according to St. Chrysostom, continued to be celebrated with splendor to the end of the fourth century." Vol. 1. p. 363 and 375. See also Potter's Antiquities, Vol. 2. B. 2. c. 24. In the diminutive territories of Greece, proper, there were four games; namely, the Olympic, the Pythian, the Nemean, and the Isthmian, with the greater and smaller Panathenæan; being all called *Sacred*.

(c.) In truth, the conduct of some of the Greeks was not less inhuman, than that of the Romans; and this barbarity among the Greeks as well as among the Romans, had some relation to the degree in which their institutions favored them. The Lacedæmonians from time to time, and as part of their national policy, slaughtered in cold blood, a portion of the Helot nation, which they held in domestic slavery; to reduce their numbers to the limits prescribed by policy and economy. The Romans on their side, may be supposed to have had in it view secretly, but yet principally, to cut off the most daring and active of their own slaves, by training them to fight in their own residence under the name of gladiators (or sword men).—The Greeks not being wealthy, originally did not show gladiators or of wild beasts, but the Romans had made the world familiar with these practices, the

(a) Mr. Arthur Jones mentions as a source of information, travelling for a week or fortnight in the best cultivated countries, and holding conversation with their intelligent farmers; provided a trustworthy person in the mean time can be kept at home. He recommends June as the proper month for this in England.

ing to the happy influences of the christian religion, and of an improved state of knowledge and education.

Our agricultural exhibitions are as yet inferior to the games of the Greeks as regards *horser*, which are still too much neglected on this vast continent; but ten years will probably place us on a level with the Greeks in this particular. As to the feats of bodily strength and skill exhibited among the Greeks, our manners neither demand nor admit them; and *foot races*, if they were of any value, might easily find a place among us. *Military exercises* have a different field, and a different form of display with us, from those known in antiquity; and we are in any event rapidly putting ourselves on a *par* with all the nations with whom we are likely to contend, whether by land or by sea. *Intellectual efforts*, which the Greeks encouraged at their public games, are much better provided for in our day, by means of printing, and the extensive spread of knowledge and civilization, exhibited in our two hemispheres. *As to Music*, which had great attention paid to it in the public games of the Greeks, it may easily find its place at our annual meetings; and when put under the safeguard of our religion, by being presented in the form of Oratorios, must become infinitely superior in its good effects to what was exhibited in Greece; where the words to which the music was set, were often licentious and seldom improving. (d)

On the whole then we may ask where any exhibition is to be named among the antients, on a great scale and calculated for domestic or pacific use, answering to our new Agricultural Institutions! We can easily add whatever is wanting to these institutions on our side; while the antient games will be found to have been deficient as to all the particulars, (*horses excepted*) which we have this day been gratified in viewing. Yet our new Institutions are only in their infancy; and may every year be improved; since they are well adapted to the feelings of our people, who are not only devoted to agriculture, and proud of its progress; but their emulation is wisely directed to the advancement of their own interest and of the national grandeur, which mainly rests upon our territory and upon its cultivation.

We say then of the policy which set on foot these Institutions, "*esto perpetua*," may it increase, be increasing, and last forever. (e)

7th. There are several other modes of assisting agriculture, which must still be mentioned; but that it may be done with a due regard to brevity, *three* of them will be connected under one head.

First, the public good requires that the Committees which are proposed for each County, be regularly nominated, and then be rendered active, by the aid of the Vice Presidents. The distant residence of the members of a County Committee from each other, will for the most part, tend to reduce the operations of each Committee very much to a mere written *correspondence*; internally within their respective Counties, and externally with the Trustees and the Com-

mittee of Publications of this Society. The two latter will doubtless endeavor to concur with the County Committees in every good work, and to render public whatever these Committees shall be pleased to communicate.

flights of gladiators are said to have found favour among the Greeks.

(d) The following passage stood in the address, but is now withdrawn from it, to appear only as a note.—The American farmer will find no higher delight than to hear celebrated (in words or ideas borrowed from Scripture) a display of the riches, the beauties, and the grand scenery of nature; the gratitude of the husbandman; the utility of his profession; and the innocence and charms of a country life. The talent of our vocal and instrumental performers will not only by means of this kind be made perfect; but our Poets be induced to give us more interesting forms of words, than are now attached to what is called *Sacred music*. By these means, *Sacred music* may in the end, obtain admission into the family of the farmer, as well as into other situations, where music of a less improving description sometimes finds its way.

(e) This conclusion may be enforced by the remarkable expression of Lord Bacon in one of his Essays: "Every nation groweth great in that it most intendeth."

mittee of Publications of this Society. The two latter will doubtless endeavor to concur with the County Committees in every good work, and to render public whatever these Committees shall be pleased to communicate.

A correspondence also may be had on the part of the Society, with the several small Agricultural Societies in our own State; and also with Agricultural Societies (small and great) in other States of our Union; and particularly with that of Massachusetts, our twin sister. The time perhaps approaches, when single States of the Union may communicate with some neighbouring State for the purpose of obtaining something useful to each State, but which neither State can easily obtain singly. If by any of these means, we can acquire, or communicate, one useful idea, it will be of National importance; and in the same manner, a *single grain of serviceable wheat*, imported among us by measures of this kind, may in a few years form the basis of a National Crop—These hints then, are neither to be despised, nor yet to be thought presumptuous.

But it is evident, that for these and various other purposes, the society will want suitable *places of deposit* for the plants, seeds, machinery, animals, and other articles which may come into its possession, or may require distribution; lest what is thus obtained should finally be lost to our country; or not be treated with a due attention, as to the fair and prompt division of the property.

8th. There is another article to be touched upon which is of the *preparatory* kind, and which will seem trifling only to those who are ignorant of the great effects often to be produced by what may seem small causes. Children intended to lead a farming life, having many vacant hours, it is recommended that *Gardening* may be encouraged among them. The antients considered hunting as a good preparation for soldiers; but surely the relationship is still closer between gardening and farming; since as far as *vegetation* is concerned, these two arts rest on the *very same principles*. The care of these little artists, is not designed to be confined merely to vegetables and fruits; for they should be permitted to cultivate flowers and ornamental trees in addition. The traveller, who shall see our country thus in every quarter decorated by the hands of busy, cheerful children, may sometimes feel inclined to settle in it, or may make favourable report of it to others; and in any event, we ought to wish prosperity to an innocent occupation, which attaches each family to its home and to a country life; leads their thoughts to their Creator; and prepares them, as it were, in a sportive manner, for the knowledge of farming; and for *habits of order, forethought, and industry*. (f)

9th. But we are now come to a graver subject, that of finance; for upon a few of the points mentioned in this address, we shall want some little legislative assistance. We ask, then, who are those interested in the success of the farmer? Are they not all

(f) The opinion that Gardening of certain descriptions should be prohibited to the children of farmers, on account of its being expensive, and (to say the least of it) useless; borders too much upon severity.

With respect to *expense*, the land for gardening is easily spared on an American farm; young persons will task themselves also in their work, to obtain time for cultivating it; and they will naturally raise upon it something for family use, or something suitable for sale. As to the seeds for stocking such a garden, those for the first year's sowing, will easily be obtained; and the seeds for all following years, must be raised out of the garden itself.

The answer to the other part of the charge will be found in the above address; and in the remark, that Gardening was held innocent in Paradise; and that ornament, such as is sought in one species of gardening, is found widely spread through nature itself, and that nothing is looked for on this occasion, but what is actually furnished by nature.

who inhabit our State? And should not all pay a little of that *tribute* which the success of agriculture requires on such an occasion? If one hundred thousand dollars be, in a short course of time, either gained or saved to our State, by the new attentions which under proper patronage may be bestowed upon agriculture; the interest on this sum is six thousand dollars; and we appeal to those who have travelled (and especially this last year) in our different States, or have received information from those who have so travelled, whether the accounts of gain or saving in crops, in stock, and in tools, do not make this a very low estimate for the effects which may be produced in our extensive territory, which forms almost the half of New England. A tax for the farmer's aid, according to Dr. Franklin's rule, would thus soon be returned back into the pocket of the payer of it, and in effect be a mere *advance*. Nor should the desire of avoiding censure on account of the increase of taxes, since our separation from Massachusetts, have the least influence here; for this may be called a *game-by* question. We cannot return to our union with Massachusetts, nor does any one seek to do it; those also who once objected to separation, are some of the very men who will be foremost in the proposition of a grant of money for the farming interest on the present occasion; and lastly, it would imply the utmost injustice to charge to the account of separation, a tax which ought to have taken place under the old Government, and which should always be withdrawn in comparison of the charges of the two Governments, since the tax will be of a *new description*. Let all objectors to a tax on this subject, recollect the noble proceedings in favor of agriculture both of the state of New York, and also of one individual in it, General Van Rensselaer; who alone has consented to give five hundred dollars to an Agricultural Society annually for at least six years. The amount of our tax must of course be left to the wisdom of our legislature to decide; it is our business only to plead in favor of some tax, and to show what are the funds for supplying it.

10th. It is now however time to conclude by the mention of a few facts, which will attach the farmer to his profession, and thus be a main aid to agriculture. In the East, Solomon and some of the Assyrian princes were fond of gardening, plantations, botany, or agriculture. The Emperors of China, also both of antient and modern times, on one day of every year in the presence of their people, plough the soil in person, and on another day they sow it; and similar wise examples have been set in other Eastern nations.—Great men likewise among the Carthaginians and among the Romans, have written on husbandry; and are mentioned with honor to this day for having so employed their time. Cincinnatus (the patron of our Cincinnati societies) a great commander in Rome, was taken from his plough to be invested with absolute power for six months, in order to rescue his country when in a state of extreme danger. In a latter age of the Roman Government an example occurred of a still more memorable description, which shall be related as nearly as possible in the words of Mr. Gibbon. The Emperor Diocesan, after he had vanquished all his enemies and accomplished all his purposes, *voluntarily* retired to pass the last nine years of his life in a private condition. Reason (as Mr. Gibbon) had dictated, and content seemed to have accompanied his retreat; in which he enjoyed, for a long time the respect of those Princes to whom he had resigned possession of the World. He preserved, or at least, he soon recovered, a taste for the most innocent, as well as the most natural pleasures; and his leisure hours were sufficiently employed in *building, planting and gardening*. When solicited to resume the reins of government by his former colleague, a Christian, he rejected the temptation; calmly observing, that if he could show Maximian the Cabbages which he had planted with his own hands, he should no longer be urged to relinquish the enjoyment of happiness, for the pursuit of power.

In Great Britain, Mr. Arthur Young had contributors to his publication called the *Annals of Agriculture*, not only Dukes writing in their own names,

but the King of England (George 3d) writing under a borrowed name. The memorable Earl Chatham and Charles Fox, with almost the whole of the nobility and gentry of the British Empire, have interested themselves in planting trees, or else the Gardening on a larger or smaller scale; and many of them have superintended the cultivation of farms and the breeding of farming animals. In our country, three Presidents of the United States have made themselves remarkable by what they have written on the subject of Agriculture; and four of our Presidents when their term of office expired, have nobly attended to the conducting of their estates; and the fifth President has a mind too excellent, and feelings too amiable and patriotic, not to follow this useful occupation.

On what does all this uniformity of proceeding in intelligent and prosperous Nations, depend; but on the great principles and great interests of human nature. It has been well observed, that agriculture is perhaps the only pursuit in which political men can find comfort, after they have resigned their power; and this is not less true, where they have sense, virtue, or domestic qualities. Agriculture is an occupation which by its infinite variety, its constant exercise of the intellect, the beautiful objects connected with it, and the degree in which it flatters self love when its works become perfect, joined to the sense of the utility attached to it; it is an occupation, we say, which is capable of filling a large void in the human mind; and, even of affording something like consolation for disappointments.—In our days, in particular, additional pleasures are to be obtained from this occupation. Besides the new objects and operations which have arisen among ourselves, or have been derived from foreign countries; men of science have laid open to the intelligent Agriculturist, so many recently discovered processes occurring in vegetation, that he seems as it were not only to be taken into partnership with the great provider of all good, but he is even allowed to direct many of the efforts of nature, and as it were to change her very constitution and habits.

***** If there be any truth then in the observation, that those are among the happiest of men who have laboring hands, a thinking head, and a feeling heart; and if the farmer joins to this the reflection of the participation which is thus allowed to him in the works of Providence, and the avowed utility of his profession; he will possess a conscious dignity and satisfaction; and may safely say, without being held profane, or fearing to be contradicted.

FARMER, REVERENCE THYSELF.

Agricultural Society of Maine.

The second *Cattle Show* of the Agricultural Society of Maine, was held on Wednesday, the 31st of October, on the Plains between the villages of Hallowell and Augusta. As the period appointed was late in the season, and the object was of some novelty in our part of the country, as well as of some importance to the whole state, it was looked to with a mixture of curiosity and anxiety. Happily the day was bright and without wind, and the temperature of the weather such, as left no one room to complain either of heat or of cold. The day being thus favourable, the Show and every thing else corresponded with it.

The collection, both of heifers and of young bulls, was very fine, and matter of great promise for future years; the working cattle were numerous, and answered every expectation, both in their appearance and performance; the stud horses were eleven in number, including Financier, who for want of sufficient length of residence, could only be exhibited; the lots of sheep were somewhat less numerous, but displayed different shades of the merino breed, besides some which were professedly mixed; the swine were good, but on account of the trouble of transportation, were, in general, very young; lastly, the cows also were good, but the largest, (belonging to Mr. Little, of —) though far exceeding every other in size, was not proved to excel them in milk, the principal quality looked for in this part of the Show. The butter and cheese appeared in considerable quantities, gave satisfaction to the inspectors, and met, in gen-

eral, with a ready sale, at high prices; and the whole would have been sold still more readily, had not the day following the Cattle Show, when these articles were exhibited proved rainy and stormy. A handsome piece of Carpeting was exhibited by Mr. Elias Blood of Hallowell, with a Leghorn hat by some other person, and several threshing machines. Two crops of Swedish Turnips were brought forward for premium, both exceeding 560 bushels per acre. There was a good crop of potatoes announced; with a large and heavy crop of wheat, besides one corn, of 102 bushels to the acre, but of less weight by the bushel than one which fell short of the number of bushels required (which was 70.) Among the vegetable productions were several large pumpkins.

Of the company there was much to boast. Our late Governor (Gov. KING) was present, as a new mark of his constant zeal for the interests of the Society; as also General Wingate, one of the candidates to supply his place, and a gentleman likewise who has generally attended the public meetings of the Society. Judge Paris, the Governor, would have been present had he not been on public duty. Three out of the nine Vice Presidents of the Society were present; a proportion (too small however) of the Trustees; one Senator and three Representatives to Congress, several gentlemen who had heretofore served in Congress; a judge of the Supreme Court of the state; several other judges; and an assortment of company drawn from eight counties out of the nine into which our state is divided. The spectators on the ground were fluctuating, but on the whole perhaps amounted to 4000; all, with very few exceptions, very decently clad; and all behaving, in general, with propriety, and without any oaths or improper language, and with scarcely a single instance of intoxication.

Of the events of the day, the most animated part was the drawing of a loaded drag and a loaded board wheeled cart by cattle; which was very memorable for its results. This part of the Show was prolonged to the next day.

The procession of the members of the Society to hear the address, headed by General Robinson, the Sheriff of Kennebec County, moved about a quarter before one, and arrived at the Rev. Mr. Gillet's Meeting House, about one. The Rev. Mr. Gillet gave a short, but very appropriate prayer, previous to the reading of the Address; an office performed by John Davis, Esq. of Augusta, who acquitted himself very happily in his task, except that from not being accustomed to speak to so large an assembly as was there present, he pitched his voice unfortunately too low to be generally heard. The address will speak for itself, as it forms part of the columns of our paper this day. The dinner was given in the Hall of the Hallowell Hotel, by Mr. Smith of the Washington Hotel; and passed off very harmoniously, and as if the occasion had made the whole company brothers. The Marshalls of the day were J. M. Ingraham and S. K. Gilman, Esq's. under whose auspices every thing assumed an air of order and ease; except at the drawing of the working cattle; when the crowd partook too much of what was passing, not to press in upon the cattle nearer than was wished.

In short, considering the day of the Cattle Show, as still a day of experiment with us, and knowing that the whole committee of arrangements did not meet together till Tuesday noon, and that the trustees who were to appoint the committees for adjudicating the premiums, in truth had no regular meeting at all, and that the very limited funds of the Society prevented part of the wished for expenditures; the day must be considered as having passed very happily.—The Committee of Arrangements for next year, when the Cattle Show will again be held at Hallowell, are Gen. Chandler, Col's. Ladd and William O. Vaughan. B. Brown, Esq. of Vassalborough, and R. C. Vose, Esq. of Augusta. From the energy and knowledge of tactics possessed by this Committee, the expected increase of funds in the Society, and the means of profiting by what has passed on our Show Ground and elsewhere; there is a well founded hope, barring those accidents to which all that is human is liable, that next year will leave little improvement to be

desired, particularly as the feelings of our farmers and of the public in these parts, seem to be at a high pitch of excitement.

The day for the next Cattle Show of our Society, will be on the second Wednesday of October, (instead of the last Wednesday), which gives an additional chance for having the next Cattle Show celebrated under an improvement of its circumstances.

N. B. The official account of the Cattle is expected soon to make its appearance.

FOR THE AMERICAN FARMER.

On Indian Corn.

10TH JANUARY, 1822.

Sir,

I am to prove to you that I have two stalks to the hill throughout my corn field—

Although liberal in dropping the seed corn, we do not think it necessary to commence thinning, as early as is common, but wait until the appearance of this beautiful plant, gives some indication of the quality of the ground in which it grows. At our first thinning, three plants are left to every hill except where the ground shows evidence of great inferiority, in such places only two plants are left, and in this state it remains until there is appearance of shooting to joints, by which time the quality of your ground is fully developed. Intelligent hands, with long, strong, and sharp knives are now set to work. Where the plants have a strong and healthy appearance, three are suffered to remain, where they have but a common appearance, two only are left, but where they look stunted, yellow, or upon known poor ground, only one is left.

I was led to adopt this method of thinning, in consequence of an experiment made upon a bet that I lost, which of three persons would grow most corn to the acre. I planted in rows six feet apart, every ten rows alternate were planted, one stalk one foot apart, two stalks two feet apart, and three stalks three feet apart. The bet, and the corn in a situation and of a growth which drew constant observation, made it interesting, and the general opinion decided in favor of the three stalks as best, and against the one stalk as worst.—The corn should be cut as low as possible, and always from the remaining stalks, and wherever a dwindling stalk appears among those of a superior growth, pull up or cut off the inferior.

I have not noticed the various modes of, or materials for manuring, as it is my intention to state my success in a future paper, and because your useful and wide circulating journal, has already communicated a great many valuable hints upon this subject, yet I must acknowledge the important observations made by G. W. in your No 33, v. 3d. His experiment is not only within the reach of every farmer, but when we consider the cheapness of the materials, and the great saving of labor, I hope the experiment will have a full, fair, and comparative trial with other manures. Let the experiments be like those of Mr. Quincy of Boston, who putting a fair value upon every kind of labour, rent, and materials, always draws a convincing result.

I will try the plan of G. W., for I have so often to contend with the tremendous labour of manuring my corn with farm yard manure, that I gladly catch at any rational plan which will enable me to perform this necessary work in better time, and at less expense.—Nor can I pass by the admirable essay by Mr. Ruffin, in your No. 40, v. 3d, which should be read by every practical farmer, and I earnestly recommend experiments with lime, to ascertain its power to eradicate sorrel, a vile plant which is overspreading every part of our country, more especially where the clover husbandry has prevailed. Mr. Ruffin says—"An acid soil made artificially calcareous by lime or shell marl, is thereby rendered incapable of producing sorrel or broom grass." What say the marl farmers of Talbot county?

I now sir proceed to touch upon a part of corn husbandry, which has of late years become very fash-

ionable, and the value of which, I confess myself incapable of comprehending. From my earliest remembrance, I have been accustomed to see corn with the tops, blades and stalks, taken at one operation from the ground, but the motive was then generally understood—it was to better improve a piece of grass land, or a lawn, and was of course upon a small scale. But for the enterprising and extensive farmer, and who is perhaps in want of labourers, what is gained by removing in this form corn from the ground which is to be immediately sown in wheat? Certainly by this process the ground cannot be fertilized or rendered more productive—admit that every acre so managed gives you an extra bushel of produce, are you certain that this one, has not cost you two bushels?

Mr. Madison's laudable address, published I think in your first volume, has said all which can be said in favor of corn, as a source of manure, and most frequently my enquiries have been answered by saying, that this method increases the manure heap—This is possible, may probable, (for in general, the fodder is only fit for the manure heap.) I can only discover that the manure heap is increased by the loss of much fodder, so no corn, as I much labour badly applied.

I have this fall been desirous to seek conviction, and more than usually attentive, I have examined the stacks or shocks in more than twenty fields, and can with great truth say, that not one of them showed good to der.

How shall it be otherwise? If the maturity of the grain is considered, we know that the blade is too old, if the perfection of the blade is a consideration, your corn is not perfectly ripe, and although it will be safely dried, yet it will be loose upon the cob, and weigh light.

You undertake this operation at a season when there is an uncommon press of work when you should be taking out manure upon your fallows, or upon poor spots of your corn field, from which indeed you may remove your stalks, because such spots are first ripe, corn light, your manuring is a primary consideration and the corn only a back look. By removing the corn and older of a large field, you may gain I think with fewer, neater furrows, (the only gain I can imagine) and place your corn in better form for the sower, but are there any of its?

Manuring a field under this new management is out of the question; for by the time you have cleared all off, you are quite as late, and rather later than you wish for seeding.

Although I am yet to learn what we gain by this new plan, it is evident, what we lose. In either of the two cases first mentioned, you have bad fodder or shrivelled corn—2ndly, you break down your teams, prevent manuring, and procrastinate your seeding—3rdly, you increase the labour of husking, and expose yourself to great loss of corn by negligence and inattention—4thly, you increase your labour by frequent handling and securing your fodder, and last, but not least, you absolutely impoverish your land, by exposing the stump and roots of your corn, instead of suffering them to rot in the ground.

Perhaps we have been led into this new and laborious management by seeing it so uniformly performed to the North—There indeed their climate, course of crops, and small fields will bear them out—always and justly apprehensive of an early frost, they cut up their corn before perfectly dry, and of course their fodder is not yet dried up, and with them, relying principally upon hay for winter provender, the seed and the fodder is the object—and as they rarely sow winter grain upon corn ground, it proves that removing their corn and stalks, it is not to improve the mode of seeding wheat.

Hitherto I have steadily adhered to the old custom of first blading then topping and at my convenience in suitable weather after seeding, gather all my stalks but the gale of last September which prostrated and tangled a fine field of corn, reminded me that I had often suffered in the same way, and reflecting that my Tobacco is improved by topping, that by early topping storms would have less power over my corn, that by blading in the first instance, the tops come dry and tasteless, and the blades thereon often whipped

to rags; I have determined to make the most of Eastman's improved cutting machine, by taking off the tops as soon as the tassels are dry, and farina exhausted—If after this I can save my blades I will do so, but as I make much upland hay, my blades shall be so far a secondary object, that more important work shall not be sacrificed on their account, nor shall the health of my people be staked for their safety.

I have paid much attention to select my seed corn from such stalks as produced two or more good ears, and always endeavor to provide twice as much as may be necessary for planting, that I may select the best ears for length of cob, depth of grain, number of rows, and weight of grain, and believe that by this method my crops are improved, but I never did measure the grain of two moderate sized ears, against the grain of one large ear.

I conclude by informing you, that between Christmas and the 8th inst. twenty-seven blacks from the circle of twelve miles, have made an excursion to the slave concealing states, and are no doubt hospitably received and humbly entertained. I find the law is now established in Pennsylvania five years confinement for the murder of a white man, and nine months for a rape committed on a white woman.

Yr. Ob't Serv't.

F.

To the Editor of the American Farmer.

MR. SKINNER,—In consequence of my wish to examine all the authorities within my reach, on Earths and Soils, the inclosed translation from Rozier's "Complete Course of Agriculture," was made by a very young lady, for my use. The difficulty of translating from that work is very great, owing to the numerous technical and provincial terms, and the difficulty, of course, is much greater to one totally unacquainted with agriculture. On this account, the author's words are rendered as literally as the difference between the French and English idiom would allow. As I know of no English translation of this (or indeed of any other modern agricultural) work, you may attach some value to the piece.

The application of sand to clay soils, and clay to sands, recommended by Rozier for improving the texture of both, though certainly advantageous, yet seems too costly to be practised on our cheap lands. But in certain situations it might be highly profitable, could we previously ascertain the probable benefit. I am compelled (with a view to other purposes,) to dig great quantities of stiff clay, and would gladly use it for improving my poor light land, could I be informed by you or any of your correspondents, what benefit might be expected. Every one can calculate for himself, the cost of the application: but to form a correct judgment of its advantages, we must know the quantity of clay laid on, its degree of purity (or the proportion of sand with which it is mixed,) as well as the increase of value to the soil, and its produce. I think you stated in one of your former numbers, that this mode of improvement had been practised near Baltimore.

ON EARTHS AND SOILS.

Translated from the French of the Abbe Rozier.

Ancient authors have not thrown any kind of light on the knowledge of Earths, and modern ones for want of method, have a great deal to wish for on this important part of Agriculture. All Geomonical works treat of earths by characters from which it would be difficult to draw inferences on the properties of the soils, which these earths compose. They are so many accidental qualities. The coloured earths are distinguished into black, white and yellow. The different species are distinguished by the appellations of soils, dry or humid, compact or friable, light or heavy, poor or rich: all unmeaning characters, because all of these different qualities offer good and bad soils. But what adds still more to this want of sig-

nification, is that this nomenclature varies from one province to another, and often from canton to canton; so that it is difficult to speak in a more unintelligible language. Under these circumstances, how are these treatises to be understood? By exploring the country, and examining its productions; then say the writers on soils, if you meet with *lièble*, that will indicate land suitable for wheat—Fern, land for rye, &c. These are conclusions, it is true; but let us substitute a much surer method, and reduce to principles the knowledge of earths.

Of the Nomenclature of Arable Earths. I reduce them into four kinds. Siliceous or sandy earth—Aluminous, or clayey earth—Calcareous, or chalky earth—Humus, or vegetable earth.

These are the only four earths for agriculture. Every arable soil is composed of their mixture, and the different proportions of these four earths are what make the variety of soils, and which constitute their goodness, or their mediocrity. Let us in the first place, consider each of them in its state of purity.

Siliceous or sandy earth is barren: the solidity of its particles, and their want of coherence, prevents them from being penetrated by water, which passes through the sand as through a sieve. This same solidity causes the sand to heat quickly, and retain the caloric, and much more strongly, when it is coloured. The action of the atmosphere, the first of improvements, is nothing on sand. Vegetables cannot germinate and grow unless they are kept constantly wet. Pure siliceous, or sandy earth is then unfruitful.

Aluminous or clayey earth, in its state of purity, is white; it claves to the tongue, is of an extreme tenacity, easily absorbs water, with which it forms a paste, soft to the touch, and susceptible of taking any form: Thus it serves equally, the statuary and the potter. Fire gives it the solidity of stone. Seeds commonly find in clayey earth, enough humidity for the development of their germs; but the fibres of the roots cannot extend into an earth so compact. Is clayey earth subjected to dryness?—its moisture exhales, the clay shrinks up, cracks and splits into large ruts then the tender fibres of the young roots are torn—the base of the stem is compressed in every direction by the contraction of the earth, in the same manner that the roots are upon their side; the plant languishes, and in the end perishes. Should there be rains, it is only while they continue that the clay will embibe them; for although this earth strongly retains humidity, yet when once dry, it is slow to retake it, above all when it is in a mass; thus the rain water filters through the cracks, to be directly absorbed by the dried up roots, which instead of reviving, are touched with mould, and perish. What action can the atmosphere possibly exercise on an earth either hard or dry, or softened in this manner by water?—its compactness is such, that it cannot open its bosom to the benign influence of the atmosphere, altho' when finely divided, it unites itself to all the gasses. Aluminous, or pure clayey earth is then also barren.

Calcareous or chalky earth, (carbonate of lime) is that which by calcination becomes quick lime: it constitutes chalk, marble, and all calcareous stones. Shells, and those immense banks formed of their remains, such as the *Fuluns*, are nothing but calcareous matter, for it is the animal kingdom which produces and accumulates on the globe, this kind of earth. Water wets it in the same manner as sand; it only passes through it. Moisture renders it heavy. Its whiteness repulses the rays of the sun, and will not allow it to absorb the caloric; so that the temperature of this earth, inferior to that of all others, constitutes necessarily a cold soil. Calcareous earth, the most barren in its state of purity, (and it is in that state that we consider each separately,) notwithstanding, carries fertility with it into the soils with which they associate it in suitable proportions. It is thus that marl fertilizes more or less according to the quantity of calcareous matter which enters into its mixture, and that it becomes a valuable amendment for worn out soils. The chalky plains of Champagne attest the poverty of this earth: it is only after a repose of several years, that a scanty crop of spring

gram can be obtained. Thus, calcareous or pure chalky earth is like vice barren.

Humus, vegetable earth, or mould, is the remains of vegetables which have undergone putrefaction. Vegetable earth is combined with salts, and oily substances, and has gasses which add to fertility. This earth and these substances are all disposed to enter into vegetable organizations, and this makes *Humus* the first of manures. In this earth, seeds germinate easily, and plants grow rapidly; but the too luxuriant vegetation has not time to complete its round—if the plant blossoms, it is only to perish before it comes to maturity. The other earths are rendered unproductive by their want of fertility—*Humus*, or vegetable earth by its excess.

All arable soils are composed of these four earths which have been described. Chemistry admits of others; but they exist in quantities so small, as to have no effect on vegetation, while our four earths, the remains of mountains, cover the surface of the globe, on which they have been deposited by the waters with which the two hemispheres have been deluged. These earths are deposited either singly or mixed.

Of the diversity of soils. It is the respective proportions of these four earths which constitute good, bad, or indifferent soils; for, we repeat, that each of the three first in its state of purity is barren, and it is only from their mixture that fertility is produced—above all, when *humus* becomes a part. The mixture produced by nature, varies infinitely. The alluvions which have successively covered the globe, have deposited, one after the other, siliceous, aluminous and calcareous earths. It is these alternate deposits which have formed the strata that are met with, particularly in valleys; which when they have but little thickness, mix easily, and constitute excellent soils: for often these deposits are homogenous—here the siliceous, there the aluminous, and still deeper, the calcareous. Happy the proprietor of land composed of our three earths, the mixture of which constitutes a rich soil, one of those soils for wheat which returns from 20 to 30 for one. These mixtures, for which we are indebted to chance, may be easily made; in this consists the art of improvement. But to be able to imitate these rich soils, one must know them, and must also know the proportions of the four earths, which constitute so happy a mixture. Now nothing is more simple than this kind of analysis, which serves to separate the four earths composing the soil you wish to know. It is only to weigh a pound of earth, dilute it with water, and stir the mixture; the siliceous being the heaviest will fall first to the bottom, separate it, (by pouring off the fluid) and weigh it. The aluminous, and finely divided calcareous earth will be mixed up in the deposit which floated over the siliceous: then throw in any kind of acid; it dissolves the calcareous, and leaves the aluminous, which is also weighed, and that which is wanting in the weight will be calcareous earth, which the acid dissolved. This analysis made on a soil of the first quality, as a wheat soil—made in the same manner on a poor soil, and then on an indifferent soil, and the different results known, every proprietor will know exactly to what point his soil approaches, or how far it differs from those soils, which are his objects of comparison. This knowledge, in the actual state of things, no proprietor possesses: so that he who has cultivated the same field for upwards of fifty years, is still ignorant of what would be so easy for him to learn, by the aid of our analysis.

We shall enlarge but little on the happy application of this knowledge, when once acquired. It may be supposed how easy it then becomes for every proprietor to rectify the mixtures of earths made by chance in his kitchen-gard, his orchard, and even in his agricultural works altogether; which takes place when he marks his fields. The art of improvement is only this; it consists in correcting one earth by the addition of another; to which let us add, that without this first knowledge of the composition of a soil, we are only groping in the dark, with respect to its improvement. Each content himself with imitating his neighbour; but that which would be proper

for one field, would (frequently) be improper for the one contiguous.

Composition of Soils. Examples of the composition of soils: a rich soil—Siliceous 2 parts, Aluminous 6, Calcareous 1, Humus 1; in all 10 parts. A good soil—Siliceous 3 parts, Aluminous 4, Calcareous 2½, Humus ½; in all 10 parts. A middling soil—Siliceous 4 parts, Aluminous 1, Calcareous 5, less by a few atoms of Humus, in all 10 parts. This shows that the greatest proportion of aluminous earth constitutes the greatest goodness of soils; and independently of their harmony of composition, they require a tolerable depth.

Having assigned to each of our earths the properties which characterize them separately, one may easily judge from thence of the parts which they respectively sustain in the composition of soils. Thus the siliceous, a collection of incoherent particles, separates the too coherent parts of the aluminous earth; a mechanical effect, which opens the bosom of this last, to all the influence of the atmosphere. In this association, the siliceous earth, incapable of retaining water, shares the humidity of the aluminous, and absorbs enough caloric, by which the aluminous is with difficulty penetrated. The siliceous counterbalances the cold quality of the aluminous, and so on with the calcareous, the humus, &c. Many thousand kitchen gardens offer us an application of these principles for the melioration of their soils. A proprietor carries me into his grounds: we arrive at his kitchen garden; I question him on the qualities of the soil—here is his answer. "The soil is excellent; you see how the cabbages, the artichokes and the thistles flourish; but I cannot raise carrots, parsnips, nor beets. Every tap root becomes twisted—the earth is difficult to work, is always infested with weeds, and is generally cold." "Nothing is more easy," I reply, "than for you to procure the different soils, requisite for the different kind of pot-herbs. Your soil contains too much of the aluminous earth. Leave a part of it in its natural state, which will serve for the more vigorous plants; improve another part with siliceous, another with a mixture of siliceous and calcareous earth—vary the proportions, and you will have every soil, and all their productions. Trees and agreeable plants will grow in every place, because you have made soils proper for them." Treat in the same manner your kitchen garden.

The species of soils. The earths, the mixtures of which form arable soils, being of four different natures, siliceous, Aluminous, Calcareous, and Humus, I establish four species of soils, which shall take their names from whichever of the four earths may predominate in their mixtures. They are, Siliceous soil, Aluminous soil, Calcareous soil, and Humus soil. There is not a single soil in which one of these four earths does not predominate, and which, therefore, may not enter into one of these four species. But how indicate the proportions of these same earths in each particular soil? Nothing is more simple. It is only by shewing them under a complex name, composed of two or three words indicative of their species, [and the largeness of the several proportions of each earth composing a soil, expressed by the order in which those words are placed.] The following table will render this definition easily understood.

GEONOMICAL TABLE.			
The nature of Earths.		The species of Soils	
Siliceous earth	[predominant in]	Siliceous Soil	
Aluminous	"	Aluminous	
Calcareous	"	Calcareous	
Humus	"	Humus	

SUBDIVISION OF SOILS.			
1. Siliceous Soil	3—Calcareous Soil		
Siliceous Aluminous.	Calcareous Siliceous.		
Siliceous Calcareous.	Calcareous Aluminous.		
Siliceous Aluminous Calcareous.	Calcareous Siliceous Aluminous.		
Siliceous Calcareous Aluminous.	Calcareous Aluminous Siliceous.		

2.—Aluminous Soil	4.—Humus Soil.
Aluminous Siliceous.	Humus Siliceous.
Aluminous Calcareous.	Humus Aluminous.
Aluminous Siliceous Calcareous.	Humus Siliceous Aluminous.
Aluminous Calcareous Siliceous.	Humus Aluminous Siliceous.

FOR THE AMERICAN FARMER.

INDIGO.

Philadelphia, December 21, 1821.

Dear Sir,—I have the pleasure to send you a letter from an esteemed correspondent in Calcutta, and also the paper on the preparation of indigo, to which he refers.—It may possibly prove useful at present, or hereafter, to some of our Southern fellow citizens, notwithstanding the cultivation of the Indigo plant has been almost entirely laid aside for the more healthy and profitable cotton shrub. But the price of cotton may continue to fall in Europe, and the demand for Indigo cannot fail to be steady in the United States, for our manufactures are daily extending, in spite of all opposition, or indifference. Indigo may therefore once more be worthy the attention of the Southern planters. The quality of the article made by them, never stood high, owing no doubt to want of knowledge, or care in the preparation of it.—Whether the particular species they cultivated, is the same as those in Bengal and South America, I do not know, but I shall inquire into the fact. The genus is extensive. I shall be happy in hearing, that the information I have been the means of diffusing on this subject has contributed to the improvement of an article so essential to the true independence of our country.

My best wishes are offered for the success of your excellent Journal.

JAMES MEASE.

J. S. SKINNER, Esq.

I have been favoured with the annexed statement of the wholesale prices of Bengal and Spanish Indigo, for several years past, by the most extensive dealer in that article, in Philadelphia.

Spanish.	Bengal.
1811, June, \$2.10—2.12.	Oct. \$1.80
—, Aug. 2.00	
1812, March, 1.95	Feb. 1.87
—, Sept. 2.05	March, 1.90
1813, Feb. 2.00	Feb. 2.25
—, March, 2.30	
1816, May, 2.45	
1815, June, 1.80	
1816, May, 3.25	March. 2.37
1817, Feb. 2.0	
—, Aug. 1.85	

Since 1817, it has raised from the price last quoted, to \$2.25, at which it now stands. From the daily increasing demand, there is no prospect of its being lower.

For an excellent paper on the use of indigo in dyeing, and on the different qualities of the

article, see *Archives of useful knowledge*, vol. 1, page 303.

Calcutta, 22d July, 1816.

DEAR SIR,

On the coast of Coromandel they have been in the habit of making Indigo, by what is there called the Dutch method, having borrowed it from Java, that is from the leaf only, pulled from the plant and dried. One of my correspondents having just established a factory, wished to try the Bengal method, as he termed it, from the plant cut green, and requested me to endeavour to procure for him the most approved process used in this settlement. Fortunately, (for it is quite out of my line) I knew a young man whose good qualities and general abilities had induced an eminent planter and manufacturer to tempt him from a Commercial House, in which he had been placed—he had been long enough in the Indigo business to have seen the whole operation, and not long enough to have forgotten the circumstances that first struck him, or to effect that mysterious reserve, with which my enquiries might have been met by an older practitioner. His answer is: easy, pressed, and I have every reason to believe that it is a faithful and fair detail of the method pursued by those who have long and successfully carried on the works, to the superintendence of which he had been called. His letter gave great satisfaction to the gentleman for whom I had made the enquiry.

I recollect to have heard from two or three Indigo Manufacturers, that the inferiority of our Carolina Indigo, was more to be attributed to the process in making, than the soil and culture; the great improvement in quality of the Bengal Indigo, since it was first undertaken by Europeans, and the superiority that some makers maintain here over others, seem to countenance this opinion. While considering what I had to offer, it occurred to me that this paper would be acceptable to you, and as I see by the Price Currents that the cultivation is still continued in Carolina and Louisiana, it may possibly afford some useful hints to those engaged in it.

I remain, Dear Sir, very respectfully,

Your most obedient servant,

D. INGRAHAM.

Dr. James Mease, Philad.

Extract of a letter written in October, 1814, from a gentleman in the superintendence of some extensive Indigo Factories, on the Gangetic, near Boglipoore, giving a concise account of the process of Manufacture, &c.

"In the cultivation and manufacture of Indigo, much depends upon the soil, much upon the weather, and there are certain points which a manufacturer cannot learn by any description; he must acquire them by observation and experience.

In this part of the country, we sow at three different times of the year, viz: in October, in February and in June; though our chief dependence is in October sowings.—We think that the land which is most suitable for corn and mustard is the same for indigo. If we happen to have showers of rain in March and April, and if the regular rains set in by the

middle or latter end of June, our produce is then the greatest, and we are enabled to commence manufacturing about the 20th or 25th of June. The plant we consider as fit for cutting when it begins to flower, and a very good sign of its ripeness is the brittleness of the leaf; when young it will bend double without breaking, but when arrived at maturity will immediately snap on being bent;—and if you take a handful of ripe leaves, and put them to your ear and squeeze them, you will hear them crackle.—The fresher the plant is brought to the vats the better, and for this purpose we generally endeavour to have it cut very early in the morning, and brought in before the meridian heat of the day. I do not approve of its being cut over night for the next day's loading; as, though it may not be heated, I think the plant becomes flaccid and unwilling to part with the colouring matter. Should the plant, on its way to the factory, have become heated, it turns quite black—and we are particular in such cases, in separating and throwing it away, as we consider that when in that state it produces not a particle of colouring matter, but materially tends to spoil the rest of the plant, to impede the process of the manufacture, and render black and brittle the whole produce of the vat into which it may have been thrown. When the plant arrives at the vat, we untie the bundles and place them therein, not quite upright, but rather in an inclined position, with the stalks resting on the bottom of the vat. This inclined posture we think gives the water a more free access to the leaves. Over the first layer we place another in a posture rather more inclined, with the stalks uppermost, or perhaps I shall explain it better by saying as you would lay the grass on the thatch of a house. This done, the height of the plant in the vat will be about three feet. Over the plant we lay gratings made of split bamboos, (we do not use mats) and these are fixed down by means of large beams attached to the vats, at intervals of three or four feet, to resist the expansion caused in the plant by the fermentation. When the vats are loaded and ready, we let in the water, and the speedier the vat is filled the better, as otherwise the plant is apt to heat by compression in the vat, and consequently to spoil. We here fill a vat of 40 feet long, 18 broad, and 3 deep in 20 minutes by means of a reservoir. We always cover the plant completely with water:—this done, we leave the vat to ferment, a process which is generally completed in the space of from ten to twelve hours, at least so I have found it during my short experience. The fermentation is more or less according to the coolness or heat of the weather. The signs by which we judge that the fermentation is completed are, that the bubbles which are thrown up to the surface during its progress turn to a fine, light froth, spread over the surface in little tufts, the intervals between which are partially covered with a thin violet coloured scum.—The liquor will also feel slimy to the touch.—This we consider the proper time for letting it off.—Should the fermentation be allowed to go on, the froth acquires a darker and somewhat dirty hue, and the scum on the intervals turns to a strong copperish colour, and we consider

the vat to be too much steeped; not that it is spoiled, as some even carry on the fermentation, as long as sixteen hours, and say that the produce is increased; of the increase in produce, however, by this mode of treatment, I am not quite certain, but that the quality is materially injured by it, I believe there is little doubt. When ready we let off the liquor into the beating vat, and when all is drained off, the plugs of communication between the beating and steeping vats are shut, and we throw away the weed that remains in the steeper. We then turn in the people to beat the liquor which has been let off. This operation generally takes from two and a half to three hours, but I have beat as long as four or five hours, and in my opinion this is the part of the process which requires the nicest attention. With us, the men stand in the liquor, and agitate it with paddles something like those used in canoes. The froth at first rises rapidly to the height of a foot or a foot and a half, and appears white tipped with blue; it then, as the beating goes on, gradually subsides, and becomes blue; the beating is continued till all this blue colour in the froth disappears, and it becomes clean white or with something of a reddish tinge, and immediately on the beating being stopped, dies away and leaves the surface of the liquor clear. We generally, however, judge of the progress of the beating, by now and then taking a little of the liquor and putting it on a clean white queens-wire plate, held in the hand, in an inclined position—at first it appears quite green, but in the course of the operation, changes gradually to blue, and the colouring matter begins to granulate; when the colour is quite blue and the granulation completed, (which is visible to the eye, by holding the plate inclined for about a minute or less) the fecula is observed to subside and leave the water of a reddish or strong Madeira wine colour. By this and the froth being clear, the vat is ascertained to be sufficiently beaten. We do not use lime water to ascertain this point, because it will equally cause a granulation and precipitate the fecula when the vat is only half beaten, as when it is completely so, and is consequently apt to mislead. We, however, add a small quantity to the vat when the beating is finished, to assist in the precipitation of the fecula—though if the plant be ripe, I do not think even this necessary. If the operation of beating be continued beyond the state above mentioned, the fecula becomes black and the quality of the Indigo is of course injured. After the beating is finished, we allow an hour for the fecula to subside, after which we draw off the supernatant liquor, which if of a strong Madeira wine colour is considered best. If green, or inclined to a dirty blackish hue, in the former case the vat has been generally too little beaten, but this is always preferable to the latter hue, which shews the vat has been generally too much beaten, and should be carefully avoided. When all the supernatant liquor has been drained off, the fecula is collected, strained twice, and put into the boilers, to which the fire is set, and kept under them for ten or twelve hours. It is then taken away, a chitack (two ounces) of alum pounded and dissolved in water, is ad-

dead to each other, and the fecula allowed to stand for an hour previous to its being let on the draining tables. The chitack of alum is added, in order of use in precipitating extraneous matter, which might affect the cleanliness of the Indigo. The fecula is left to drain on the tables till it comes to the consistency of a strong jelly, it is then put into frames, pressed, and cut into cakes, which should be left to dry as gradually as possible, not suffering wind to blow upon them, which will subject them to crack. I have now, my dear sir, communicated all I know on the subject, and it will afford me pleasure if it proves in any degree useful," &c. &c.

An Investigation of some curious facts in Natural History.

FOR THE AMERICAN FARMER.

Mr. Skinner,

As I am an old fashioned man, I could not but admire at the simplicity of an article extracted from the "London Farmer's Journal," in the 39th number of your valuable paper. The agricultural community are there informed, that the properties of the male are transmitted, in breeding, not merely to the immediate offspring of the female, but to the remote progeny of subsequent conceptions, and by different sires! Consequently the breeder of *Mules*, for example, need only obtain one foal, from the Cross of the Ass with the Mare, and the Mare is then prepared to breed *Mules* from the Stallion Horse! Admirable indeed! How readily do the laws of nature accommodate themselves to the ill-digested theories of visionary men!—The votaries of Natural History may soon prepare themselves, for equivocal generation itself—not only among brute animals, but our own species! and soon may we expect to realize the vision of the Poet:—

"Men prove with child as powerful fancy works,
"And maid's turned bottles, call aloud for corks!"

But to be serious, Mr. Editor, permit me to enquire of your practical readers, whether (admitting the supposition of the "London Farmer's" correspondent to be correct) the after offspring have been known to produce their kind, or, in other words, to breed?—Now, I hold it to be a fact past contradiction, that although a mixed offspring may be obtained, from the crossing of animals of different species, but of the same genus, yet no instance can be authenticated, where said offspring have been known to breed. And this agrees with what is remarked, concerning the animal produced from the *Quagga* and the Mare, in the article alluded to:—for that, we are told, "proved hybrid, or incapable of breeding." So *Mules* may be obtained from crossing the Ass with the Mare; but no one ever knew *Mules* to produce their kind. *Mongrels* may be obtained from crossing the Canada and the common Geese; but no one ever knew such *mongrels* to breed! It is a law of nature, that the different species of the animal creation shall not be commingled beyond the first degree. But according to the position assumed in the "London Farmer's Journal," the colts produced from an Arabian Horse out of a mare, that had previously bred a *mongrel foal*, possessed many of the characteristics of the Sire of this foal!—If so, then these colts must be *mongrels*! How shall we account for this? There can be but two suppositions, as I conceive, concerning it.

I. Either a portion of the seminal fluid remained "in utero" after the production of the *mongrel foal*, or

II. The characteristics of the Sire of said *Mongrel* become incorporated with the system of the Mare, at or after the first conception. As to the first supposition, if any portion of the seminal matter of the Sire of the *Mongrel* remained "in utero" after the pro-

duction of said *Mongrel*, and if said matter entered into the formation of the subsequent offspring, then this offspring must be of three parents, to wit: the *Quagga*, the Mare and the Arabian Horse! But this is impossible, for in the first place, a *mongrel*, that is an animal of two species, cannot be formed otherwise than: half and half—a greater or less portion of the blood of either parent than half, cannot enter into the offspring. Nature, as I have said, has prohibited the commingling of the species, in any other portions, than half and half! otherwise we should see 1-4 and 1-8 blood *mongrels*, which is contrary to all experience.—In the second place, supposing the instance to relate to animals of the same species, I believe it will be contrary to experience and repugnant to common sense, to suppose an animal the offspring of three parents!

II. As to the second supposition, viz: that the properties of the *Quagga* became incorporated with the system of the mare, prior to her conceiving by the Arabian Horse—this is not only absurd but impossible. It is absurd, in as much as, if we admit it to be true, then a *dray-mare*, that has bred several colts from the Race Horse, may be supposed so transformed, as to breed races, even from a *Flemish Stallion*! It is impossible since every anatomist will agree with me, that the "foetus in utero" is a mere recipient, and can neither contribute to the nutriment nor the inherent qualities of the parent, any more, than wheat can add to the character of the soil it is sown in. Having thus seriously attempted a confutation of the doctrine of the "London Farmer's" correspondent," it may be expected that I should say something by way of accounting for the phenomena, he has described—and first, of the Arabian Colts.

Both these animals, "we are told," "in their colour and in the hair of their manes, shewed a striking resemblance to the *Quagga*." Now, as to this animal, I have myself once had an opportunity of seeing one, in London (a male), and as to Arabian Horses, I have seen many, and of various casts and breeds. The *Quagga* has a light and thin mane and tail, his colour is of a light mouse grey ground; is marked with a dark coloured list, down the back and across the shoulders; his head, neck, fore arms and sides are striped similar to the *Zebra*, with dark coloured stripes upon the mouse coloured ground above named—his back and buttocks, with the exception of the list, are without stripes. His form is much like that of the small Ass of Barbary.

These characteristics, (in a certain degree) are also to be observed in the Arabian Horse, (with the exception of the stripes on the head and neck) and not unfrequently. I have myself witnessed several specimens, among the rest a number of half-bred Arabians of a light ash colour, listed across the shoulders and along the back, and having stripes around or crossing the fore arms, from Horses imported into New England from Tripoli, by the late Gen. Eaton. Two years since, there were four of these animals in the city of New York, driven in the carriage of a gentleman, of course—the position I take touching their colour is notorious.

As to the other instance, adduced concerning Swine, I am of opinion, that the colour of the Pigs described, might be easily accounted for, were the *Pedigrees* of the Boar and Sow, and also the peculiarities of colour among their ancestors presented to us, it being a well known fact, that the characteristics of the ancestors will occasionally exhibit themselves even among the remote progeny. At any rate it is by no means surprising to notice, among animals of the same species, new varieties of form and colour, either from accident or otherwise.

Positive and dogmatical, as the preceding remarks may appear, my opinions are not grounded on a vain theory—I appeal to experience—"Thy Servant's name hath been Cattle from his youth even until now," and he doth not fear contradiction, but expects support from every sensible and practical agriculturist.

GEORGAS.

New York, January 2d, 1822.

Communicated for the American Farmer, by
G. W. JEFFREYS.

THE STERCORARY.

QUINCY, (Mass.) June 20, 1817.

Dear Sir.—I should have earlier acknowledged the letter you did me the honour to address to me in April last, but absence from home, and engagements prevented that attention to it, which it was entitled to receive. Your inquiries needed no apology. It gives me great pleasure to correspond with gentlemen interested in agricultural pursuits. These now occupy much of my thoughts, and success in them is deeply connected with the prosperity of our country.

In relation to the particular object of your letter, I do not know how I can better reply than by referring you to the first volume of the Memoirs of the Philadelphia Agricultural Society, page 282—which contains all the hints, I deem essential on the subject of a Stercorary. My letter to Judge Peters, to which you refer and which he published, was intended only to counteract the opinion, he expressed of the effects of a stercoreary under a barn. My experience had shown, that if sufficiently spacious and well ventilated, it had no injurious effects upon the health of the animals above, or upon the quality of the manure. I stated my experience, and to my surprise found myself in print. Every thing essential to be attended to in the construction of a stercoreary, is I think contained in those memoirs. To be covered—to be water-tight—to possess an easy mode of passing the draining over the heap—are the most material points of attention. The scale will depend upon the size of farm to be accommodated—or the state of capital employed.

With respect to your inquiries concerning the quantity of water to be applied, &c.—I know no rule on the subject, nor any do I believe exists, which common sense will not dictate—not to admit more than the water-tight receptacle would contain; that secured. I should let as much water enter as the surrounding buildings and delicacies would throw in—unless indeed, the quantity was so great as to render working in the stercoreary inconvenient. As to the "time of irrigation," I have been wholly governed by convenience—On a rainy day—if my hands have nothing else to do, they irrigate my cellar—sometimes by the machine, I state in the letter to which you allude—at others by the aid merely of buckets. In doing this I have two objects, one is to produce fermentation, the other to enrich every part of the heap, by the particles contained in the drainage.

I have no experience of composts made on the scale and in the manner which you suggest. I use no straw as litter; my horses live upon this cut with oats, barley, or Indian meal. Sea-weed is my litter. "Weeds, leaves, earth." I think best treated in a rough way, and thus best composted. Let the yard be made of a size suited to your stock—cast in those substances occasionally, and yard your cattle upon them at night. By treading and manure, &c. they unite and amalgamate the mass. If you choose then

to cart it to your stercorary, there mix, irrigate and let these substances ferment, the better.

I have not these two years past "turned over" my manure in my stercorary, any more than is sufficient to make good *stowage* of it. Nor do I believe any thing is gained by "keeping manure" after it is one year old. As to rough composts out of gross materials, much must depend upon the material, and the advantageous circumstances, in which the heap has been composed.

I consider *water* as the best medium for communicating the riches of the manure heap to the soil.

The best mode is to cart the drainage upon the land, and apply it to the grass or to the vegetable cultivated. If this be not convenient, then, I never allow a loaded cart of manure to start from my stercorary until it is saturated with the drainage by pumping this on the load.

I shall inclose to you by mail, the last number of our Massachusetts's Agricultural Journal, and shall be gratified to hear that it reaches you in safety.

The state and scale of Agriculture is so different in North Carolina and Massachusetts, that I scarcely know whether any thing I have written can be serviceable.

You will receive it, however as the best information I have to give, in compliance with your request: and as an evidence of the respect with which

I am, Yours, &c.
JOSIAH QUINCY.

Geo. W. Jeffreys, Esq.

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This is a point which has been the subject of more experiment than perhaps any other in which the United States are interested. The system of restriction on our part, is in that particular state, that we must necessarily go on with it, or reverse it, and that immediately.

It will need no very powerful arguments to shew that a modification of the latter plan is our best policy. The act of 1820 which prohibited the importation from the free ports of Bermuda, Halifax and St. John's, of any articles, but those produced there, has had the direct contrary effect which was looked for—benefiting us, by extending our share of the carrying trade to the British colonies, inasmuch as the extensive supplies we sent, prior to the taking effect of that act, to Bermuda, at a freight at the rate, for instance, of 12 dollars per M. for staves, go now almost wholly to New Brunswick, at the rate of 5 dollars per M. for the same, with the like difference in other goods. In the mean while, the sugar, molasses, coffee, pimento, &c. which paid so large a revenue, now go to the European markets—for it is a well known fact, that nothing can be sent thither from the British Islands, through those belonging to other powers, but rum; at the same time the facility of selling the cargoes we send to the free ports, by barter for the above articles, and which, if unrestricted here, would increase the vent and the profit at least two fold, is lost—to say nothing of the return freight to our vessels. So far

from relaxing in the navigation laws, the British government have lately opened the port of St. Andrew's, on our very border—while other sources of supply to their colonies are daily discovered: deals from the Baltic, and staves from Hamburg, are seen shipping thither in large quantities, to say nothing of the resources in the Islands themselves; and the more impediments we place in the way of their dealing with us, the more they will look elsewhere for what they want. Does it not follow, that, in the end, we may teach them to do without us? It did appear three years ago, that the plan adopted on both sides, of dividing the carriage by the medium of free ports, was calculated to satisfy both parties, and so it certainly was, with regard to Bermuda. What crooked policy it was, therefore, to adopt a plan which lessened our share of that advantage! As matters now stand, let simply the prohibition upon imports from Bermuda be taken off, and it follows, to a moral certainty, that the great bulk of the exportations from this country to the British West India will go that way, instead of to the adjacent ports of New Brunswick, and at an advantage to our shipping interest, amounting to little less than the whole value of the object sought for, for it may very safely be asserted, that the trade with Bermuda is as great an advantage to us as that with Barbadoes. &c.

It is equally a voyage, and though somewhat less in duration, the rates of freight would be found nearly the same, and the climate of climate in which our seamen would be exposed is beyond comparison in favor of the former. The yielding by G B in a direct and unimpeded trade can never be expected. It employs too many of her seamen, and too much of her floating capital, not to be an object of vital importance. Admitting that our supplies are indispensable, and that we deprive the colonies of the obtaining of them out by direct importation in our own vessels, will it not be in their power when conceding this, so to burden the traffic with taxes and tonnage duties as to make it ruinous to us: and, to prevent this, where are our restrictions to stop? A perfect reciprocity is evidently only to be obtained by the mode so natural of dividing the difference. And it is to be hoped, if this question is taken up in Congress this year, as has so often been the case, that it will be put at rest by the adoption of a plan similar to the one now pointed out. A.

THE FARMER.

BALTIMORE, FRIDAY, JANUARY 25, 1821.

THIRD EDITION OF THE AMERICAN FARMER.

It gives us great pleasure to announce that the *Third Edition* of the second volume of the American Farmer, has been reprinted, and is now in the Binders hands; to those who have ordered copies, they will soon be sent, and others who may wish to have them can now be supplied—Price 5 dollars bound.

This edition has been revised and corrected with very great care, and we persuade ourselves to believe that it is perfectly executed.

The third edition of the first volume will also be ready for delivery early in the month of March, and with it a very copious Index will be furnished. The Index appended to the former impressions of this volume, are not as full as we wish they had been made;

this defect will be remedied in the third edition, and shall not occur in any future volume of our work; nor should it in the case that we regret if our attention had been sooner called to the subject.

Our third volume draws towards a close, and as we have printed some surplus copies of it, persons who have not yet procured the work, will have it in their power by making an early application, to get the three volumes.

Our republication is an expensive undertaking, one that renders new subscribers at this time peculiarly desirable; and punctuality on the part of old ones absolutely necessary.

A Clerk and Messenger.

The Editor wishes to engage a Young Man of good education as a Clerk in the Office of the American Farmer; and a lad well acquainted with the city, to be employed as a Messenger. Satisfactory recommendations will be required.

Cabbage Seeds, Early Peas, &c. &c.

JOSEPH P. CASEY, Seedsman, &c. has just received a fresh supply of

English Cabbage Seeds, &c.—viz.

Early Dwarf Cabbage	do	Large Amsterdam	do
Screw	do	Smyrna	do
Salisbury	do	Unique	do
York	do	Green Savoy	do
Sugar Loaf	do	Yellow do	do
Pinton	do	Cape Broccoli	do
Battersea	do	Purple do	do
Late Battersea	do	White do	do
Red Pickling	do	Green do	do
Flat Dutch	do	Early Cauliflower	do
Drum Head	do	Late do	do
Imperial	do	Dutch do	do
1000 Headed	do	Smyrna do	do
Turnip Rooted	do		

EARLY PEAS.

Six weeks Peas	do	Glory of America	do
Early Hotspur	do	Dwarf Marrowfat	do
Golden do	do	Large Marrowfat	do
Prolific do	do	Knights do	do
Early Fame do	do	Black-Eye Peas	do
Imperial do	do	Field do	do
Blue Prussian do	do	Egg do	do
Dwarf do	do	Pearl do	do

HOTBED EDIS.

Egg Plant and Radish Seeds	do	Capsicums or Peppers	do
		Cucumber, or sorts.	do

With a variety of other Garden Seeds, Roots, Early Corn, of sorts, Bird Seeds, Fools, &c. Agricultural Almanacks for 1822.

CORN SHELLERS,

AT REDUCED PRICES.

The subscriber has just received from the manufacturer a supply of those valuable machines at reduced prices, which enables him in future to sell them as follows: to wit—

Large size with the stool, at \$22	
Middle size - - - - - 13	
Small do - - - - - 16	

For the information of those unacquainted with these machines, I will just say, that they have been often tried and well shelled, with the aid of a man and boy, from 15 to 20 bushels in an hour; being mostly composed of iron they are not liable to get out of order—any person taking one and finding on trial, it does not perform according to their expectation, shall be at liberty to return it. It being small, the freight or carriage will be about the same as a barrel.

On hand a general assortment of PLOUGHS, Field and Garden Seeds, &c. &c.

ROBERT SINCLAIR,
Plough and Seed Store,
Ellicott street, Pratt street wharf, Baltimore.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL. III.

BAITMORE, FRIDAY, FEBRUARY 1, 1822.

NUM. 45

AGRICULTURE.

Extract from Darwin's *Phytologia*. Economy of Vegetation.

THE GROWTH OF SEEDS, BUDS, AND BULBS.

I. 1. SEEDS resemble eggs. 2. The embryo is of different maturity. The leaves visible in some seeds. 3. Why the plumula ascends and the root descends. 4. Nourished by the seed-lobes, by the fruit. Becomes a dwarf if deprived of them. Melons and cucumbers are too luxuriant. Turnip-seed should be new. 4. Seeds have hard shells, have acrid rind, with bitter or narcotic juices, but pure starch may be procured from them. 5. Umbilical vessels, and roots of seeds. Annual, biennial, and perennial plants. Reservoirs of nutriment in their roots. All plants are biennials. Bulbs and buds succeed each other many times before they flower. 6. Wheat. Stems and roots round the first joint. Has no nectary. Is greatly increased by transplanting.

I. 1. HAVING treated of the physiology, we now step forwards to consider the economy of vegetation, as far as it may serve the purposes of agriculture and gardening.

After the production of the seed, or vegetable egg in the pericarp of flowers, and its ensuing impregnation by the farina of the anthers shed upon the stigma, a coagulated point appears on the seed-lobes according to the observations of Spallanzani, like the cicatrula on the yolk of the egg.

The seed continues to grow in the pericarp sustained by adapted secretions from the vegetable blood, which is previously oxygenated in the bractes or floral leaves of many plants; in others the seed is itself in an air-vessel probably for that purpose, as in staphylea, bladder-nut, and tagetes, African marygold. At the same time a reservoir of nutriment is secreted, and deposited in the seed-lobes or cotyledons, which are single ones in the seeds of palms, grasses, and lilies; though twofold in those of most other herbs and trees; whence the strictest analogy exists between seeds and eggs.

2 In some seeds, when they leave the vegetable uterus this embryo is much more mature than in others. In the seeds of the nymphaea nelumbo the leaves of the future plant were seen so distinctly by Mr. Ferber, that he found out by them to what plant the seeds belonged. The same in the seeds of the tulip tree, liriiodendron tulipiferum. Amoen. Acad. V. VI. No. 120. And Mr. Baker asserts, that on dissecting a seed of trembling grass, he discovered by the microscope a perfect plant with roots sending forth two branches, from each of which several leaves or blades of grass proceeded. Microsc. Vol. I. p. 252. While in other seeds the coraculum or heart only of the seed is distinctly visible, as in the kernel of the walnut, and the seed of the garden-bean. So in the animal kingdom

the young of some birds are much more mature at their birth than those of others. The chickens of pheasants, quails, and partridges, can use their eyes, run after their mothers, and peck their food, almost as soon as they leave their shell; but those of the linnet, thrush and black-bird, continue many days totally blind, and can only open their callow mouths for the offered morsel.

3. When the seed falls naturally upon the earth, or is buried artificially in shallow trenches beneath the soil, the first three things necessary to its growth are heat, water, and air. Heat is the general cause of fluidity, without which no motion can exist; water is the menstruum, in which the nutriment of vegetable and animal bodies is conveyed to their various organs; and the oxygen of the atmosphere is believed to afford the principle of excitability so perpetually necessary to all organic life; and which renders the living fibres both of the vegetable and animal world obedient to the stimuli, which are naturally applied to them.

Whence we may in some measure comprehend a difficult question; why the plume of a seed sowed upon or in the earth, should ascend, and the root descend, which has been ascribed to a mysterious instinct; the plumula is stimulated by the air into action, and elongates itself, where it is thus most excited; and the radicle is stimulated by moisture, and elongates itself thus, where it is most excited, whence one of them grows upwards in quest of its adapted object, and the other downward.

The first source of nutriment supplied to the seminal embryo, after it falls from the parent plant, exists in the seed-lobes, or cotyledons, which either remain beneath the earth, and are permeated by the umbilical vessels of the embryon plant, which absorb the mucilaginous, farinaceous, or oily matter deposited in them, as the bean, pism; or the seed-lobes rise up into the air along with the young plant, as in the kidney-bean, phaseolus, become seed-leaves, and serve both as a nutritive and respiratory organ. These cotyledons or seed-lobes generally contain mucilage, as in quince-seed; or starch, as in wheat; or oil, as in linseed.—Some of these nutritive materials are probably absorbed unchanged, or dissolved only by the moisture of the earth; others are converted into sugar partly by a chemical process, and partly by the digestive powers of the young plant, as appears in the process of germinating barley, and converting it into malt; these reservoirs of nutriment are hence perfectly analogous to the white of the egg, a part of which is probably absorbed unchanged by the lymphatics of the young embryo, and a part of it converted into a sweet chyle for the nourishment of the chick, when it has acquired a stomach.

If the seed be deprived of these cotyledons,

soon after the root appears, it will continue to grow, but with less vigour, and is said to produce a dwarf plant from three to nine times less than the parent. Hence the seeds of plants, which are liable to produce too vigorous roots, and thence have not time to ripen their fruits in the short summers of this climate, or which fill our hotbeds with too luxuriant foliage, as melons, and cucumbers, should in this climate be kept three or four years; by which part of the mucilaginous, or farinaceous, or oily matter of the cotyledons becomes impure or decayed, and the new plant grows less luxuriantly.

Another source of nutriment for the seminal embryo of many plants exists in the fruit, which envelops the stone or seed vessel, after the growing fetus has burst into confinement, and so far resembles the yolk of the egg, which becomes a nutriment to the chick, after it has consumed the white, and eloped from its shell.

When mature fruit, as an apple or a cucumber, falls upon the ground, it supplies as it ripens or decays, a second source of nourishment, which enables the enclosed seeds to shoot their roots into the earth, and to elevate their stems with greater vigour. Hence fruits generally contain a saccharine matter, or juices capable of being converted into sugar, either by a spontaneous chemical process, as in baking sour apples; or by a vegetable process, as in those sour pears, which continue to ripen for many months, both before and after they are plucked from the tree, as long as life remains in them; that is, till they ferment or putrify; and lastly, by the digestive power of the young embryo, as above mentioned.

If the seed be deprived of the fruit, it will indeed vegetate, but with less vigour. Hence those seeds which are liable to produce too vigorous shoots for this climate, as the seeds of melons and cucumbers, should be washed clean from their pulp, before they are hoarded, and preserved three or four years before they are sown in hot-beds. But those seeds, which are sown late in the season for the purpose of producing winter fodder, as the seeds of turnips, should be collected and preserved with every possible advantage; and on this account new seed is much to be preferred to that which has been long kept.

4. Many seeds when mature are dispersed far from the parent tree, for the purpose of their growth, by various contrivances, as mentioned in Sect. VII. 2. 5. Some of these are surrounded with hard shells, which are impenetrable by insects, as they lie on the earth to take root, as peaches, nectarines, nuts, cocoa-nuts. Other seeds are furnished with an acrid covering to prevent the depredation of insects, as the peel of oranges, and lemons, the outward husk and inward rind of walnuts, and of cashew-nuts, and the skin of mustard and rape seed; other seeds for the same purpose abound with nectary or saccharine juices, as the horse-chestnut, acorn, apricot,

cherry, many of which supply materials to the shops of medicine, and may supply nutriment in times of scarcity; as the starch, which they contain, may be procured by grating them into cold-water, and washing away the mucilage, and the poisonous material, which adheres to it, or which is soluble in water.

5. The plumula of the seed or embryo plant, absorbs the nutriment laid up for it in the seed-lobes by vessels, which permeate them for that purpose, and have been termed umbilical vessels; and afterwards shoots its roots down into the fruit, or into the earth, in search of other nourishment; and expands its leaves in the air as an organ of respiration.

Those plants, which are usually termed annuals, produce their flowers and die in the same year in which their seeds are sown; as barley, oats, and a variety of garden flowers. These nevertheless in accurate language should be termed biennials, because the seed in this climate is produced in one summer; and the embryo plant becomes mature in the next; as the seed is generally preserved in our granaries, or seed-boxes, and not committed to the ground till the ensuing spring; for many of these vegetables are not natives of this climate, and would perish if the seeds were sown in autumn, when it is naturally scattered on the earth.

Those which are usually termed biennial plants, differ from the former, first in the time of sowing the seed, which is generally in the early autumn, as soon as it is ripe, as of turnips, carrots, wheat; and thus these produce their flowers in the second year after the seed is sown, which has given them the name of biennials.—Many of these plants, perhaps all of them, lay up a reservoir of nutritious matter during the summer or autumn in their roots. This nutriment is secreted from the vegetable blood, which is previously oxygenated for that purpose in the large leaves, which generally surround the caudex of the plant, as in turnips and carrots. These leaves survive the winter in many plants, which the more succulent stems probably would not; and the nutriment deposited in the root is expended in the growth of the stem and the production of seed in the ensuing spring. As in these vegetables one of our summers is too short for their growth from the seed to the fructification; and it is for this reservoir of nutriment that these plants are generally cultivated.

But those plants, which are termed perennial, when first raised from seed, are many of them some years before they produce flowers. Some of them form bulbous roots, as the tulip, hyacinth, onion, which are three or four years before they flower, during which time I believe all the bulbs die annually, producing one larger than that of the preceding year, and perhaps some smaller ones, all which annually increase in size till they flower. The same occurs in potato-roots raised from seed, which do not flower as I am informed till the third year, and then only those which seemed of stronger or forwarder growth.

Other perennial plants have palmated or branching roots; in some of these, as in seedling apple-trees, the flower is said not to appear till

ten or twelve years after the seed is sown; the buds nevertheless annually dying and producing other buds over them, perhaps more perfect ones, as they acquire after a few years the power of producing sexual organs, and in consequence a seminal progeny. In these perennial herbaceous plants and trees a magazine of nutriment is provided in their roots or sapwood, to supply the new buds, which are to grow in the ensuing spring.

Whence it appears, that all the vegetables of this climate may be termed biennial plants; as the seeds of some, and the buds or bulbs of others are produced in one summer, and flourish and die in the next; those which are called annuals or biennials leaving behind them a future progeny of seeds only; those, which are termed perennial herbaceous plants, leaving behind them the first year or two a progeny of bulbs or root-buds only, and afterwards a progeny of seeds also; while the perennial aborescent vegetables leave behind them a progeny of buds only for several successive years, and afterwards a progeny of both buds and seeds.

Thus the bulb from a tulip-seed produces a more perfect bulb annually, till it flowers, I believe, on the fifth year. It then produces a flower, and also one perfect bulb, which flowers the next year; and some other less perfect bulbs, which are succeeded by more perfect ones annually, till they also flower. Whence I conclude, that no tulip bulb flowers till the fourth or fifth generation.

It is probable, that a similar circumstance occurs in other vegetables, as in apple trees; and that the buds of these do not produce sexual organs, and a consequent seminal progeny, till the twelfth or fourteenth generation of the bud from the seed; each of those buds nevertheless producing one principal bud annually more perfect than itself, and many lateral buds less perfect than itself; that is, at a greater distance from that state of maturity which enables it to form a flower. This art of distinguishing the greater or less maturity of buds is a matter of great importance in the management of fruit-trees, as in many of them the central bud becomes a spur one year, and flowers the next; and the lateral buds one or two years afterwards, as will be mentioned in Sect. XV. on the production of fruit.

6. In wheat there exists about the caudex a reservoir of nutritious juices deposited in the autumn for the purpose of raising the stem in the ensuing spring like that of turnips and carrots; but which is attended with other circumstances peculiar I suppose to the grasses, and other plants, which possess only one cotyledon or seed lobe. The early leaf, which surrounds the first joint of the stem, withers as the spring advances: in which joint it had previously deposited a saccharine juice, and probably some new embryon buds were at the same time generated in the caudex; for through this withered leaf, which surrounds the first joint of the stem within the earth, a circular set of new stems issue adhering to it, and a circle of roots below them adhering to the caudex or base of it. These new buds rise into air, and shoot their roots into the earth; and in this manner many stems are produced in the spring from one seed sowed in

the autumn preceding; though in some kinds of wheat the whole process of the seed rising from earth, and producing other stems round the principal one, and of ripening its seeds, may be performed in one summer even in this northern climate.

Another peculiarity attends the growth of wheat and other grasses; the leaf, which surrounds and strengthens the stem by its foot-stalk, deposits at every lower joint a saccharine matter for the purpose of nourishing the ascending part of the young stem; and in the uppermost joint, I suppose, to serve instead of honey for the stamens and stigmas, as their flowers have no visible nectary; and as the scales of the flower may with good reason be esteemed a calyx rather than a corol, according to the opinion of Mr. Milne; as these scales attend the seed-vessel to its maturity, which the corol does not. Milne's Botanical Dict. Art. Gramina.

Owing to this secretion of saccharine matter at the foot-stalk of every leaf, and its collection round the joints of grasses, it happens that when these joints are surrounded with moist earth, and are placed but a certain depth from the air, that new buds will put forth round these joints, and strike their roots into the soil.—Whence the agrarian husbandmen may derive great advantage from transplanting his wheat, after it has produced a circle of new stems from the first joint of the straw; for if he then parts and replants them an inch or two deeper in the ground, so as to cover the first joint of each of these additional stems, he may multiply every one of them four or six times, and thus obtain twenty or thirty stems from one original seed. See No. III. 1 and 7. of this section.



A transplanted root of wheat described in articles 3 to 7.—a the seminal root, b the coronal root, a b the elongated caudex, c g the first stem, c d the first leaf, e f a secondary stem. All these existed before transplantation. The secondary stem was then cut off at f, and the plant was buried in the soil as deep as the letter f, where it was cut off. Afterwards the stem which was lopped, had put forth a new caudex or root-scion at h; which had produced three new stems at i; and other new ones, as it approached nearer the surface, at k and l. As these leaves advanced into the air, the latter new stems were produced by the caudexes of them.

(To be continued.)

Philadelphia County Agricultural Exhibition and Fair.

In conformity with an act of the Legislature of Pennsylvania, the Philadelphia Society for promoting Agriculture will hold their First Annual Exhibition and Fair on the 4th and 5th days of June next, at the houses of John Elliott and George Ludwick, in Blockley Township, when the following premiums will be distributed.

NEAT CATTLE.

For the best bull, not more than 4 nor less than 2 years old

next best
next best

For the best Bull Calf, not more than 12 nor less than 6 months old

next best
next best
next best

For the best Cow, not more than 7 nor less than 3 years old

next best
next best

For the best Heifer, not more than 3 nor less than 1 year old, with or without Calf

next best
next best
next best

For the best Heifer, not more than 3 years old, which shall have calved twice, reference being had to her offspring

For the best Heifer, not more than 12 nor less than 6 months old

next best
next best
next best

For the best Bull of Teeswater or Durham blood not more than 2 nor less than 1 year old

For the best Bull, of Devon blood, not more than 2 nor less than 1 year old

For the best Heifer, of Teeswater or Durham blood, not more than 3 nor less than 1 year old

For the best Heifer, of Devon blood, not more than 3 nor less than 1 year old

SHEEP.

For the best Ram, not more than 3 nor less than 1 year old

next best

For the best Ewe, not more than 4 nor less than 1 year old

next best

For the best Ram Lamb, not more than 12 nor less than 3 months old

next best
next best
next best

For the best Ewe Lamb, not more than 12 nor less than 3 months old

next best

For the best Ram, of Dishley blood, not more than 4 nor less than 1 year old

For the best Ewe, of Dishley blood, not more than 4 nor less than 1 year old

For the best Ram, of Southdown blood, not more than 4 nor less than 1 year old

For the best Ewe of Southdown blood, not more than 4 nor less than 1 year old

For the best Merino Ram, not more than 4 nor less than 1 year old

For the best Merino Ewe, not more than 4 nor less than 1 year old

For the best Broadtail Ram, of Tunisian blood, not more than 4 nor less than 1 year old

For the best Broadtail Ewe, of Tunisian blood, not more than 4 nor less than 1 year old

HORSES.

For the best Stallion, fitted for the road or draught, not more than 12 nor less than 3 years old

For the best brood Mare, not more than 7 nor less than 4 years old

SWINE.

For the best Boar, not more than 4 nor less than 1 year old

For the best Sow, not more than 4 nor less than 1 year old

For the best Pigs, not less than five in number not more than 9 nor less than 3 months old

OXEN.

For the best yoke of Working Oxen, not more than 7 nor less than 4 years old (reference being had to their performance in the plough)

For the best Ox, not more than 8 nor less than 5 years old

For the best Steer, not more than 5 nor less than 1 year old

For All Breeding Animals which shall have received premiums at the Exhibition, will be required to remain in Pennsylvania one year thereafter.

BUTTER AND CHEESE.

For the best fine Butter, not less than 25 lbs. made in Pennsylvania

For the best Cheese, not less than 100 pounds, made in Pennsylvania

For the best preserved Butter, not less than 30 pounds, made in Pennsylvania, and which shall have been kept at least 3 months

For the best Maple Sugar, not less than 100 lbs

For the best Pot or Pearl Ash, not less than 200 pounds

IMPLEMENTS OF HUSBANDRY AND USEFUL INVENTIONS.

Premiums will be distributed for improvements in Ploughs, Harrows, Fans, Drills, Chaffcutters, Threshing Machines, and for such inventions or discoveries as shall tend to facilitate the operations of Husbandry, advance the cultivation of the soil, or add to the convenience or comforts of life.

HOUSEHOLD MANUFACTURES.

For the best Linen Cloth (for shirting or sheeting), 1 yard wide, not less than 25 yards long

For the best Linen Diaper, 5-8 wide, not less than 50 yards long

For the best Flannel, 7-8 wide, not less than 40 yards long

For the best Carpeting, 4-4 wide, not less than 30 yards long

For the best Coating, 3-4 wide, not less than 20 yards long

For the best Woollen Cloth, 3-4 wide, not less than 20 yards long

For the best double milled Kersey, 3-4 wide, not less than 20 yards long

For the best pair of Blankets, not less than 8-4 wide and 10-4 long

For the best Woollen Knit Hose, not less than 6 pair in number

For the best Cloth made of Hemp, 1 yard wide not less than 25 yards long

For the best Man's Hat, made of grass, straw chip, or other vegetable material

best Woman's ditto

best ditto ditto

All articles of household manufacture, for which premiums will be awarded, must be the product of the city or county of Philadelphia.

CROPS.

The following Premiums for Crops will be distributed at the Annual Exhibition of 1823.

For the largest quantity of Flax on one acre

best crop of Wheat on one acre

best crop of Indian Corn on one acre

best crop of Barley on one acre

best crop of Potatoes on one acre

best crop of Mangel Wurtzel on 1 acre

best crop of Pumpkins, or squashes on one acre, fitted to withstand the winter

best crop of Cocksfoot (or Orchard Grass) with or without clover

It is to be distinctly understood, that in every case when the Board of Directors shall consider the object presented unworthy of distinction, they reserve to themselves the right of rejecting it, although by literal construction it should be entitled to reward—and that in all instances where Premiums shall be demanded, they will require such evidence as to them shall be satisfactory.

As many of the most enterprising agriculturists of the adjoining states are expected to attend the Exhibition, the farmers of Pennsylvania are respectfully invited to send to the Fair such fine animals as they shall be disposed to sell—ample provision having been made for the accommodation of all that are likely to appear.

STEPHEN DUNCAN,
JOHN HARE POWEL,
MANUEL EYRE,
WM MASON WALMSLEY,
REUBEN HAINES.

Committee.

At a special meeting of the Philadelphia Society for promoting Agriculture, held on the 5th December, 1821—it was resolved that a committee be appointed at the next annual meeting, to consist of ten members, to constitute a Board of Directors for the execution of the provisions of an act, entitled "An Act for the promotion of Agriculture," &c.; who shall have power to hold an annual meeting for the distribution of prizes for the improvement of Farm Stock, as well as for the advancement of Agriculture and Household Manufactures; and that the President and Vice Presidents, Secretary and Treasurer shall, ex officio, be members thereof; that the Board of Directors shall be equally divided into committees, to be called the Committees for Stock and Manufactures—that with the Stock Committee shall rest all matters connected with, arising out of, or necessary for the distribution of premiums for Stock, and Farming Implements—that with the Committee for Manufactures shall rest all matters connected with, arising out of, or necessary for the distribution of premiums for Manufactures—that with the whole Board, or with such members thereof as they shall appoint, in like manner shall rest, all matters connected with, arising out of, or necessary for the distribution of premiums for Products of the Soil.

Extracted from the minutes.

ROBERTS VAUX, Secretary.

John Scott, of Edinburgh, having bequeathed Four Thousand Dollars of the funded American stock of the United States to the corporation of Philadelphia, in order that the interest and dividends thereof be laid out in Premiums, to be distributed among ingenious men and women who make useful inventions, accompanied by a copper plate inscribed, "To the most deserving"—and whereas the Select and Common Councils of the city of Philadelphia, by an ordinance passed the 22d day of November, 1821, have authorized the Philadelphia Society for promoting Agriculture to carry into effect the legacy of John Scott—it was resolved that the Board of Directors appointed for the execution of the provisions of an Act for the promotion of Agriculture, be the Committee to fulfill the intentions of the said John Scott.

ON HEDGES.

[Communicated for the American Farmer by G. W. Jeffreys.]

Boston, 12th Dec. 1817.

My dear sir,

I duly received your favor of the 15th ultimo. Your plan of commencing a systematic planting of live hedges is equally wise and patriotic: useful and ornamental in itself, excellent as an example.

In reply to your inquiries, I state that my experiments in hedging have been successful to my utmost wishes—and I am continuing to plant them. I have used the Washington, or American Thorn as it is called, which I obtained at Thomas Maine's Nursery, near Georgetown in the District of Columbia—and the English white Thorn, which I imported in seed from London. The former is more beautiful, and grows more rapidly—but its tendency is to spire upward instead of throwing out horizontal branches—for a strong fence, to resist cattle, I think the English white Thorn preferable. My mode of cultivation is simple—first year cultivate the hedge row in potatoes—enriching, deep nung, pulverizing the ground six or 8 feet wide—then plant the hedge in a straight line, the plants eight inches apart protect them from cattle—cultivating potatoes at least four feet on each side, and carefully keeping your plants clear of weeds when hoeing the potatoes—taking care to have a nursery of plants of equal age with those in the hedge so as always to be able to fill out deficiencies with plants of the same age—this is very important. In trimming encourage the lower horizontal branches by shaping it sloping, pyramidally on each side.

I am much impressed however with the idea of cedar hedges—an account of them may be found in a work, entitled *A Treatise*—written by John Taylor, of Caroline county, Virginia. A work, which contains more useful hints, (although written in a very obscure style) for farmers in your part of the United States, I think, than any work extant—were I a southern farmer, I should follow his suggestions, more implicitly than those of any person with whose experience I am conversant. The work may be obtained at Georgetown, District of Columbia, or at Richmond.

With respect to *soiling*, it is a subject embracing so great a variety of considerations, that I cannot persuade myself to enter upon its elucidation. It would require a recapitulation of facts and reasonings so numerous, and minute, that I am sure your patience would fail to read if mine did not to write all the particulars which a full answer to your queries would require.

A great many hints on this and almost every other subject connected with farming and agricultural economy, may be found in "Bordley's Essays on Agriculture," a work easily to be obtained in Philadelphia, and worthy to have a place in every farmer's library.

Soiling if commenced ought to be at first on a small scale—trials of plants which may be made to follow each other in succession should be made—what would be right in the climate here would scarcely answer with you.

Indian corn, buckwheat, oats, lucerne, cabbage, clover, all sown and cut for fodder are among the best. It is a most important system on farms comparatively small and where there is no pasture ground. Its great profit consists in the great quantities of manure it enables the farmer to raise, without much expense.

I should doubt the expediency on any farm where there was sufficient ground good for pasture and good for little else.

August, 2, 1818—Quincy.

In countries where "hogs are permitted to run at large," I should put the hedge plants at six inches apart. A single row is easier wed;—I apprehend a double, placed in the Quinceux order, is stronger.—My hedges have been generally trimmed in the winter, as the most leisure time—Some prefer the latter of June, or beginning of July.

With respect to "the appearance of my hedges"—I have about a mile in length, of the Washington Thorn, recommended by Mr. Maine—it was planted

in 1808. It is generally impervious to cattle, about nine feet high, having always been cut down to five feet—the average growth this year four feet.

I have about a quarter of a mile of the English white thorn. I imported the seed in 1797—it was greatly neglected till about three years past. Its average height is now nine feet, and is absolutely impervious to any thing but sparrows. A bull might as soon go through the side of a house.

I think I have told you before, that I greatly prefer the English white thorn to our American hedge thorn, as it is called. The latter has a perpetual tendency to spire upwards, and is made to spread about the lower branches, and near the ground with great difficulty—cattle also browse upon it with less fear, than upon the former. I set out this year about a mile of hedge, and it was of this thorn—I imported it from Glasgow, in Scotland, and it cost me here, all charges included, less than \$5 per thousand; being seedlings of one year's growth.

I have no question that "hedges are cheaper and more durable" than any dead fences made of wood. But they require attention, perseverance and annual provision against accidents and occasional failure.—Farmers and Planters relent at all cares not included in the old mill horse course, they have learnt from their ancestors; the progress of hedging will be therefore slow.

But the agricultural interest will be deeply indebted, and permanently benefited by gentlemen who, like yourself, engage in new and wise courses with a temper, which deserves and will ensure success.

It will give me great pleasure to reply to any of your inquiries, being

Very truly, yr. humble Serv't.

JOSIAH QUINCY.

GEORGE W. JEFFREYS, Esq.

The Editor of the Farmer will please insert the accompanying Memorial, and oblige a subscriber and constant reader

To the honourable the Senate and House of Representatives of the United States in Congress assembled.

The Memorial of "The American Society for the encouragement of Domestic Manufactures."

Respectfully Represents—

That although certain sections of the United States are maritime and commercial, the country is substantially agricultural; and that it is the wisdom of an agricultural nation to give the greatest possible value to the products of the soil. This object must be accomplished either by consumption at home, or by sales in foreign markets. Of the consumption at home, that of food is the least important; that of Manufactures, converted from our raw materials by the labour of the country, is of the highest consequence. While a nation is able to give to its agricultural productions the greatest accession of value it is highly imprudent to send its raw materials abroad. From the neglect of this principle, all agricultural countries, neglecting manufacturers, have had to encounter an unfavourable balance of trade, in their intercourse with those whose attention has been awakened, and policy governed by a due regard to this important source of national wealth and vigor.—These positions are submitted as sound principles of policy for the United States, and are therefore respectfully urged by your memorialists upon your honorable body.

The peculiar state of the civilized world at this time, admonishes us that the foreign trade in provisions, bread stuffs and raw materials, on which we have heretofore relied, must be greatly abridged, if not almost destroyed. In this state of things your memorialists see no resource but in Manufactures, by which the surplus of materials will be consumed in a manner the most useful and creditable to the country and in a form too that will enable this nation to meet, and subdue the rivalry of other countries. They also respectfully submit, that there is a crisis in the trade of this country at this moment, peculiar in itself, important in its probable results, and rendered mo-

mentous by the sagacity and vigilance, which Great Britain is now bestowing upon it. It is the trade with South America. That part of our hemisphere gives every thing that is asked, in return for fabrics which can with ease be furnished by the United States; and would in itself form an abundant market for all the manufactures which this country can produce for exportation; while the probable extension of its resources, and its demand for the general productions of the United States, could not fail to elevate us above the most commercial nation of the earth. The advantage of an American citizen over a British subject in this trade, in the item of taxes alone, independent of the superior natural advantages we possess, would be decisive, did Congress only mete to this nation one half of the aggregate encouragement to enterprise and industry given to the subjects of Great Britain.

Your memorialists cannot refrain from inviting Congress to turn its attention to the oppressive weight of Exchange against the United States, in the trade with England, and the highly injurious consequences to result from it. The cause is too obvious to require comment, and the effects to be produced, may be certainly predicted. They beg leave to suggest the benefits that would accrue to this country, were the capital annually expended in Great Britain for manufactured goods for our consumption, employed at home in the manufacture of the same articles. Such a policy would, in the opinion of your memorialists, produce comfort and abundance at home tend to establish a sound and active currency throughout our country, and lay the surest foundation of an extensive foreign commerce.

Your memorialists respectfully represent to your honorable body, that they espouse the general plan of encouraging Manufactures by the project of a Tariff heretofore submitted to Congress; but should Congress in its wisdom deem its entire adoption inexpedient at this time, they then respectfully submit the policy and necessity of increasing the Tariff of Duties on woolen, flaxen, and hempen fabrics, iron, glass, paper, and fine cotton goods. Your memorialists will not venture to designate the rates by which the increase of the Tariff might be graduated as to these articles; they will only presume to suggest, that the increase of duty, and other measures for the protection of our manufactures, should be adequate to produce the effect intended, and which they submit to the wisdom of their representatives in Congress. It appears to your memorialists, that as to the articles above enumerated, the present Tariff is graduated at that point which deprives the nation of the public advantages of the system of manufacturing; and that the protection and encouragement is not sufficient to draw out fresh capital, or in any manner to create a competition among our own citizens. If it be a fact that some of the manufacturers of woollens, or other articles, now established, are able to thrive, it is an event highly auspicious to the nation, and will be hailed by every patriotic citizen; while it furnishes the most satisfactory evidence, that Congress can incur no risk in making the system of manufacturing, general and permanent; more especially when the whole system is fortified by that wise maxim of political economy, that it is impossible for a nation to retrograde when it is judiciously and fully employed in the arts of peace.

Your memorialists beg leave further to represent, that the abolition of the credit for duties; a high duty upon sales at auction of all manufactured goods, whether foreign or domestic; and a declaratory law requiring the officers of the customs to charge a duty on the bounties allowed by foreign countries upon articles exported to the United States, as a part of the original invoice value, would essentially advance the revenue of the United States, and promote the objects of this memorial.

The arguments which support the first and second of these branches of policy, are familiar to your honorable body, and those which support the third, are too obvious to require to be detailed at length.

As to credits on duties, we respectfully submit the fact to the notice of Congress, that there is no other country on the globe, within the knowledge of your memorialists, that allows a credit on duties. But your attention is more especially invited to a consideration of the many millions of United States capital, which by this system of extended credits, are rendered unavailing to the Treasury, but most profitably employed in the hands of foreign merchants and foreign manufacturers; it having been ascertained that about three fourths of the manufactured goods imported into the United States, come in upon foreign account.

A calculation of those credits, made on a continued succession of importations, would give results well worthy the most anxious attention of your honorable body.

From the prevailing system of foreign manufactured goods on the consumption of the country, through the medium of auctions, many very serious evils have arisen, which can only be remedied by an act of Congress. These evils have heretofore been detailed in numerous memorials to your honorable body, and we need only point your attention to its ruinous effects on the regular trade of the country; the introduction and distribution, by this means of spurious and simulated fabrics; its facility of forcing upon the market the surplus and injured productions of foreign workshops, to the manifest injury of our own manufactures, the means afforded to foreigners to defraud the revenue, and the obviously demoralizing effects of this system of trade in every point of view, without its producing any advantage whatever to the nation.

With regard to foreign bounties, if a check be not put to this system, by the imposition of a duty on such bounties as a part of the invoice value, it may be in the power of foreign countries effectually to evade the revenue laws, and destroy the infant establishments of a rival nation; and no wisdom in the country thus practised upon could avert the fatal effects of such a device.

Your memorialists respectfully represent the fact to be, that the United States are now practised upon extensively in this way.

Your memorialists beg leave further respectfully to represent, that in their opinion the trade in silks, and other fabrics, from beyond the Cape of Good Hope, is peculiarly injurious to this country, and that good policy dictates that there should be a material increase of duties on such goods. And lastly, that the interests of the revenue will be greatly promoted by causing any increase of the Tariff, to take effect forthwith.

With a firm reliance on the wisdom of Congress, your memorialists pray, that your honorable body will take the subject of due protection to National Industry, into serious consideration, and grant such relief, as you may deem proper.

WILLIAM FEW, President.

P. H. SCHENCK, } Secretaries.

C. G. HAINES, }

On the equitable principle—*audi alteram partem*, we shall present in our next, the other side of the picture from the pen of a distinguished member of the Board of Trustees of the Massachusetts Agricultural Society.

Edw. Am. Far.

FOR THE AMERICAN FARMER.

Defence of the Weeping Willow.

I was sorry to see in your paper, No. 41, vol. 2d, a deadly blow, aimed at my favorite tree, I mean the Babylonian Willow. When I reflected, on its being the sacred custodian of the dead. "The willow waving o'er the stone," and that it was admitted in miniature forms to the very pulse of the heart, embellished with pearls and gold, as a sacred emblem. I hesitated not to consider its standing as coeval with time. How great was my surprise to

find it charged with producing noxious vapours, sickness and consequent death. You will excuse me therefore in saying a few things in its defence, and let the javelin of death fall where it is due.

In the first place then, I may remark that the willow grows most thriftily in low damp grounds, and is planted almost always in such places, which are generally unhealthy. Let not the willow which in part corrects this humidity by its great absorption of waters, bear the blame of the soil. It must be granted that the willow throws off more trash, than some other trees, but this is not more unhealthy, yet it is much easier removed by a rake than most other kinds. Let not then the willow bear the blame, that should be bestowed on laziness or uncleanness. In the next place I assert that the willow as a genus furnishes us with the very best substitute for Peruvian bark of any known vegetable (not excepting the red wood or *cornus sericea*.) I ask then in the name of chemistry, botany, and medicine, how can the effluvia of so salutary a tree be noxious? Chemistry ranks all trees nearly alike, as to the gasses, there can be no suspicion from those and we may say with the late Dr. Hutchinson, (a good chemist,) "from the fragrant rose to the deadly night shade, all conspire in renovating the air," and I may add from the lofty poplar, that bathes in the clouds, to the lowly willow that laves in the stream.* Dr. Rush has said something in his first works or lectures about low places, near Philadelphia becoming more unhealthy by removing the trees. Some few trees may be suspicious even in this climate, where we are not in danger of touching the Manaheneal of the west, or the Boan-apas of the East Indies, but they are not introduced about houses.—The Rus Vernex, or poison ash is suspicious—and I think I have read in the New York Medical Repository a paper charging the Privet hedges, which the first settlers introduced into Jersey with injuring the health of the inhabitants. The effluvia of trees, may be summed up as follows: the gasses—secondly, the permanent essential effluvia of the leaves and body—thirdly the adventitious volatile effluvia of the flowers: of the first I defy chemistry to give us any predilection—as to the second, it is a mere matter of taste, so that one may prefer the walnut and hickory, and another pines and cedars whilst either might be unpleasant to a third, but their light flavors cannot be injurious but by disgust. All very strong essential smells are somewhat injurious. I presume where they are so close or powerful as to command the nerves:

* Trees expine oxygen, in the day with few exceptions, and a sufficiency of other gasses at night to make a deleterious compound.

* The essential effluvia of most leaves and trees, may be distilled as spirits of turpentine from pines—oil of Sassafras from *Laurus Sarsopet*, but the effluvia of flowers can seldom bear the fire without their destruction. It is said that the French get the finer essences from Jessamine, by laying the flowers between floes of cotton that have been oiled with the oil of Bene, which extracts and retains the effluvia. The valuable oil of attar of Roses is a secret preparation which I believe is not obtained from the flower petals, but from the calyx, just before the flower expands.

and hence the third kind proceeding from flowers is often injurious as has been proved from flowers in close rooms. I think therefore that orchards too near a house are injurious, and the chestnut tree in bloom or the locusts may do ten times the injury of willows. Trees without odoriferous flowers are therefore preferable. The hedge above mentioned not only commands the olfactory nerves whilst in bloom, but on decay stinks with the myriads of rose bugs that feed in general upon them.

ARBORIPHILLUS.

FLAX.

From the New-Jersey Eagle.

The following interesting and important communication is earnestly recommended to the attentive perusal of our readers.

Mr. Kinney.

I beg of you to publish the following information, in answer to the many inquiries made by letter and otherwise in relation to the cultivation of flax, to enable the farmer to prepare for the ensuing season.

The land upon which I cultivated flax the last season was reclaimed salt meadow lying opposite Newark—From the experiments made the last year, and the best information I have been able to obtain from practical farmers, and writers on husbandry. I recommend the following course to be pursued—

1. Sow your seed at any time between the 20th April and the 10th May.—Last year I began as early as the 30th March and continued until the last week in May, but the lots sown between the 20th April and 10th May were the best—the difference of climate must necessarily regulate the time of sowing, which a little experience will soon teach.

2. Change your seed—never sow the seed grown on the same soil—and above all, get clean seed—I know an instance the last season, where the Mill-jerry or Negro-hail, as it is generally called, destroyed a whole crop. It will pay well to get your seed from H. M. & J. Russel, flax seed merchants, in New-York, corner of Broad and South streets, near the White Hall.—

3. If you wish to raise a crop of *fine flax*, which will pay better than a crop for seed, sow as near as may be, 2 bushels to the acre—If for seed, then from three pecks to a bushel—I would recommend to every farmer that can do it, to raise at least ten acres in flax; to sow 8 acres at the rate of two bushels per acre, and the remaining two acres for seed—he can then at another season, change his seed with the flax seed merchant—sow clover, timothy or other grass seeds with your flax seed.—

4. If you cultivate for *fine flax*, then as soon as the Bolls or Capsules are formed and while they are yet in the milk, the crop must be pulled and spread thin upon the ground. If the flax is left to grow till the seed is ripe, the harle or fibre is too coarse to make fine linen, and cannot be made as white by bleaching.—If you cultivate for seed, pull your flax as soon as the leaves begin to fall, and the stalk shows a bright yellow colour and the bolls are turned a

little brown—when the flax is lodged it should be pulled immediately, and great care is to be taken in sorting the different lengths, to prevent waste in dressing and hacking or hatching as it is called.

5. The crop after being pulled and spread thin on the ground, must be turned from time to time until it is quite dry.—If it is put up green or damp or the bolls not perfectly dry, it will not clean so well, and is liable to ferment and injure—you will hasten the drying of it by standing it upon the butt, loose; and turning it occasionally inside out.

6. The crop when sufficiently dry, should be tied up in bundles or sheafs and taken to the barn or other place to be kept dry.—Each bundle should weigh about two pounds, particular attention should be paid to this, for it will facilitate the dressing, as the machine will take thro' at one time, a bundle of about two pounds weight spread out thin, and three of those bundles in a minute, the tender of the machine therefore has very little time to regulate the size of his bundles.

7. The flax thus prepared is dressed in a machine *without rotting or wretting*, and when dressed can be rendered by every farmer's wife, perfectly white, resembling floss silk, by following the directions that will be given—the machine will dress hemp and flax wretted or unwretted, and hemp at present bears a good price.

8. A greater quantity of flax is obtained in this way, so that the owner of the machine is able to give the farmer as much clean flax as he can procure in the old method, the flax is stronger because unwretted, and one moment's reflection will show the advantages that result to the farmer—he gets as much flax as he can get in the old way—he saves the labour of wretting, and avoids the risk of ruining his flax, and also the labour of cleaning it. The flax is better, and rendered fit for immediate use, without bleaching in the old way; and if the farmer has any to sell, will readily bring him one third more than the flax prepared and cleaned as heretofore done.

9. I remark, that your land, if in good condition, will yield an average of one and an half tons of plant or stem, and without it is in good order, ought not to be sown with flax. There is a market at Patterson, for more than New Jersey can raise, beyond what is required for family purposes. You ought not to manure your flax land in the spring, except with lime, marl, shells or leached ashes—*top dressings* soon after the plants appear, of plaster, where it will answer, and of ashes or soot, are said to be beneficial: and an experiment in Connecticut has proved, that salt, at the rate of 5 bushels to the acre, is a good manure. I think more would be better. Some of the best flax I had the last year, was sowed on a *green sward*, there were fewer weeds, which are the great enemy of flax.

10. As to the profit in cultivating flax, take the following statement:—Suppose each acre to yield 1 1/2 tons. The owner of a machine can afford, wh. flax brings 15 cents a pound, to give 15 dollars a ton for the flax plant, as it comes from the field, threshed or not—say then that ten acres produce 15 tons of flax plant at

\$15 per ton is

Deduct, at the rate which I paid in cash, (the farmer saves it by his own labour.)
Ploughing 10 acres, and sowing 20 bushels of seed, harrowing, &c. at \$3 per acre.
20 bushels of seed, at \$1 50
Pulling and spreading, at \$3
Drying, bundling and carting to the barn, at \$1 50 per acre,

\$30

20

30

15—105

Leaves clear profit on 10 acres,

120

That is, \$12 per acre. Can the Farmer make as much out of any other article?

ANTHONY DEY.

New-York, Nov. 30. 1821.

Management of Pigs.

The following items on the management of Pigs, are extracted from a private letter from the pen of one of the most accomplished gentlemen and systematic farmers, in the state of Massachusetts.—May 29, 1819.

"I have sent by the bearer, the three pigs for your Baltimore friend, the white male and female are the Byfield breed; the spotted female, Byfield and Bedford, with a small cross of the Bakewell—the latter I consider, as having an equal disposition or propensity to fatten, with a hardness of constitution that is wanting in the Byfield breed. I have thought them better nurses, and more prolific—you wish me to give you my method of treating them, which I presume is similar to that of persons engaged in this part of the country and is as follows, viz. after they are farrow'd, the dams are fed with the wash or swill from my house; and from the house occupied by the men that work on my farm, mix'd with boil'd potatoes, skim milk and butter milk, stirring in meal and bran, when the liquor is quite hot, good wheat Bran or Shorts I prefer very much. When five or six weeks old some times sooner they are taken from the dams, when they are fed principally with skim milk, butter milk, and bran or shorts occasionally mixing some of the put liquor, as it is often called—once a fortnight they are wash'd clean with the soap-suds left on washing days; that practice is continued for three or four months, when they become too large to handle with ease, after that, during showers in warm weather they have fine wood ashes sifted on them, and thrown between their legs, which becoming wet makes a ley that induces a disposition to rub themselves clean and white, keeps the skin loose, and very much promotes the growth—they are well litter'd with straw in their lodging rooms, kept dry, and in cold weather shut so close as to keep out the cold wind and rain—they are fed regularly, made to eat clean, never gorg'd—their food salted then not composed in part of put liquor, in which salt Beef and Pork have been boiled; after I commence fattening them in the fall of the year, they have once a month a table-spoonful of Brimstone pounded fine, to each pig, and a month or six weeks before they are killed, they are fed with scalded Indian

\$325

meal thick as for hoe cakes, and hard and whole corn, which serves to harden the pork, and is thought to improve the quality. In summer and during the season for weeds, they are fed with them, and occasionally with Lettuce, of which they are fond, this serves to keep them in health and promote their growth.

I remain respectfully,

your humble servant,

G****. P*****.

—0—

"THE AGRICULTURAL SOCIETY OF MONTGOMERY COUNTY, MARYLAND."

Rockville, January, 19 1822.

SIR—Agreeably to a resolution passed at the last meeting, of the Agricultural Society, of this county—I enclose to you a copy of the constitution which has been adopted, together with a list of the officers appointed by the Society.—You will oblige the Society, by giving it a place in the American Farmer.

I am sir in behalf of the board, your obedient servant,

ARCH BALD LEE,
Corresponding Secretary.

The undersigned citizens of Montgomery county, being duly impressed with the importance of promoting improvements in Agriculture and rural economy, have associated under the title of "The Agricultural Society of Montgomery county, Maryland," and for the government of the same have adopted the following constitution:

Article 1st. All citizens of the county shall become members of the Society upon paying not less than one dollar to the treasurer and subscribing these articles, and every member shall pay not less than one dollar annually. All monies received by the treasurer shall be disbursed by the president and vice-presidents or a majority of them, in pursuance of appropriations by the board.

2nd. The officers of this Society shall consist of one president, four vice-presidents, and twenty-four curators, one treasurer, one corresponding secretary, and one recording secretary. Thereof one vice-president, and six curators, shall be selected from each of the present election districts, who shall forthwith organize themselves into a board to be denominated "the board of the Agricultural Society of Montgomery County, Maryland."

3d. The board shall meet at Rockville quarterly, on the first Mondays of January, April, August, and November, to which meetings every member of the Society shall have access. In the absence of the president the senior vice-president present shall preside, and eight members shall constitute a quorum.

4th. The stated meetings of the Society shall be at Rockville, on the first Saturday after the second Monday in November, and on the first Saturday, after the first Monday in March, in each year.

5th. All officers of the Society shall be elected by ballot at the November meetings, and all vacancies shall be filled by the board.

6th. The president shall have power to call special meetings of the society by notice through the secretary at suitable public places in the county. And each vice-president shall assemble the curators of his respective district, at

such time and place as he may designate, a which meeting the senior curator shall preside in the absence of the vice-president.

7th. All honorary members shall be appointed by a majority of the whole board.

8th. Whenever the board deem it expedient they may purchase an Agricultural Library for the Society to be deposited with the recording secretary.

9th. The corresponding secretary shall reduce to form, all reports that may be made to the board for the Society, correspond with other Societies and individuals on all objects of this institution, and transmit notices of all honorary appointments.

10th. The recording secretary shall attend all meetings of the Society and of the board. He shall keep a faithful record of their proceedings and preserve in order all papers placed in his care by the president or the board. He shall take charge of whatever the curators may place in his hands, and keep a record of the names of the subscribers, as well as of all members of the Society.

11th. The treasurer shall keep a faithful account of all sums of money received, either from members or contributors, with a list of their names and places of residence, a regular account of monies expended with receipts therefor, furnish such accounts for the inspection of the board at each quarterly meeting; and to the Society, when so required, at their stated meetings.

12th. The curators shall collect such local information as they deem useful, specimens of grains, seeds, plants, manufactures, and whatever they may deem important, and they shall lodge the same with the recording secretary for the inspection of the Society. They shall, at the spring meeting report from each district upon the composition of manures most in use, as well upon those most easily made, upon the materials favorable for manures, upon the soils, upon the natural growth of trees, plants, herbs and grasses, and upon minerals, streams of water, mills to be relied upon for supplies in dry seasons, and upon the grasses, seeds and implements of husbandry generally in use, and those they most approve, upon the dairy in all its branches, upon fencing and enclosures of wood, brick, stone, hedges, &c. and upon gardening generally. At the autumn meetings they shall report upon the crops, fruits, seedings, spring and fall preparations of the soils, top dressing of grains, and grasses, upon the most approved kind of domestic animals during the seasons, upon earths, and manures, animals, vegetables, and minerals upon the management of crops, gathering them in, and the most economical mode of conveying them to market, upon the roads and other facilities for transportation, upon Horticulture and rural economy. They shall also report at both autumn and spring meetings, upon the best systems of husbandry used in their respective districts, including cleaning, draining and irrigation of up-lands and low-lands. The board shall designate the periods and places of fairs, the articles to be shown, and the premiums to be given. They shall appoint three judges for each class of articles, whose decision shall be obligatory.

13th. Any citizen of Washington county, (D.C.) may become a member of this Society on the conditions specified in the first article.

14th. All propositions for amending this constitution shall be laid before the Society at a stated meeting, and referred to the next stated meeting, and the corresponding secretary shall give notice thereof, to the vice-president, and curators of each district, and if approved by three fourths of the members present at the meeting to which it is referred, it shall become part of this constitution.

Roger Brooke, *President*.

Charles J. Kilgour, *1st. Vice-President*

Thomas Davis, *2d. do. do.*

Basil Brooke, *3d. do. do.*

Thos. T. Wheeler, *4th do. do.*

Arch. Lee, *Corresponding Secretary.*

J. M. Leach, *Treasurer.*

Ladock Magruder, *Recording Secretary.*

Goshen Curators.

1st. Ephr in Gather,

2d. Edward Burgess,

3d. David Frame,

4th Lyde Griffith,

5th Rhebus Riggs,

6th J. W. Magruder.

Berry Curators.

1st. Bernard Gilpin,

2d. Thomas Gettings,

3d. Thomas Stable,

4th Henry Howard,

5th, R. Y. Brent,

6th R. B. Dorsey.

Motleys Curators.

1st. William D. Jr.,

2d. Elijah Veves,

3d. Daniel Trundle,

4th Solomon Davis,

5th E. W. Williams,

6th James Fletchall.

Rockville Curators.

1st. G. C. Washington,

2d. Honore Martin,

3d J. C. Lackland,

4th George Magruder,

5th Thos. A. Brooke,

6th Samuel Hamilton.

On the Cultivation of various Artificial Grasses.

Inquiries have frequently been made of me respecting the culture of grasses, preparation of the land, times of sowing, quantity of seed, &c. and believing as I do, that the wealth and prosperity of most parts of our state, much depends on the culture of artificial grasses, and not having had less than from 60 to 100 acres of artificial grass, growing for the last 17 years, has afforded me an opportunity of making some observations, which may be of use to our Young Farmers.

RED CLOVER.

The culture of this valuable grass is so generally known, that it may seem superfluous to give any instruction on that head, but as the right understanding and culture of this grass, is so important to the Farmer, and as many are entirely unacquainted with it, I thought I might in a concise way touch on the heads necessary to its cultivation.

Previous to sowing this grass seed, have the land well pulverised by the culture of some previous crop, or frequent ploughings, until the native grass is entirely destroyed, then take five or six quarts of good clover seed to the acre, and sow it any time between the 15th of February and the same time in August, on crops of small grain, or alone, two quarts less of seed will do as well, if sowed with one of Bennett's Drills. If the land is poor, chuse the crop that will afford it the best protection against the sun, as rye, &c. and if rich, the crop which will smother it least in its infancy as wheat,

oats, &c. they being slow of growth, if sowed after the middle of March; the seed should be sown in with a pair of light harrows, particularly when sowed with wheat or rye, as the ground is often settled together, and requires loosening, which is a benefit to the grain crop, and covers the seed, which would otherwise, in many cases, be lost. As there has been of late time, great complaint of clover failing, or not standing as usual, I think it may be accounted for in two ways. First, the years 1819 and 20 were very unfavourable both in winter and summer, to the growth of clover, but we have no reason to be discouraged on that account, for the last summer the clover stood and grew as well as ever. Land which has been clovered and plastered for many years, becomes rich and full of grass roots, which the further rotation of crops does not sufficiently eradicate, consequently prevents this tender tap rooted plant from thriving, and it has been found by experience that by cultivating almost any plant long on the same spot, it will exhaust nearly all the food necessary for its support, but would at the same time produce luxuriant crops of something else; hence the necessity of change; this is a subject long since well understood in England, and by many in this country, though they consider clover the most valuable of all their improving crops, yet they have to discontinue its culture a while when they discover the land to be what they call clover sick; an increased attention to manures or turning in green crops to enable us to take off one or two more root or grain crops in our rotation, will I think, enable us to raise clover as usual—the choice of seed should be carefully attended to, as by stacking it when in the straw a little too damp, the vegetating qualities may be destroyed, which is not often observed by those unacquainted with the circumstance, and foul seeds, such as the Daisy or Richardson's pink and ripple grass—the former is by far the worst, being very injurious to both grain and grass, but the latter is only injurious to hay, and is esteemed and even sowed in some places for pasture.

There is a species of clover, called the tall or sapling clover, which has the appearance of the common red, but is much taller and coarser, ripens about two weeks later—except its coarseness, (which may be corrected by sowing six or seven quarts of seed to the acre.) I prefer it to the common kind for sowing with timothy, as they ripen together, and for improving poor land, it is much the best, as it affords a greater covering to the land, and more enclosing particles.

The quantity of seed above stated, is founded on the supposition, that it is all covered either by harrowing or by the winter frosts.

Timothy is a valuable grass, makes good hay for horses, but for cattle it is too dry and binding, is best suited to stiff moist lands but will grow well on high mellow land provided clover is sowed with it, as it retains the dew long and preserves the timothy from the drought and heat which would otherwise affect it.

This seed may very properly be sown on wheat or rye at the time of sowing clover, by mixing four or five quarts per acre with it, but would be a surer crop if sowed in the fall.—

If a permanent meadow is to be set, I have thought this crop of sufficient importance to prepare the ground purposely for it by ploughing early in the spring and stirring it several times during the summer to pulverize the soil and destroy all the native grass; then sow about four or five quarts of good timothy seed to the acre, any time between the first of August and 20th of September, and harrow with a pair of light harrows as before. Great care is necessary in procuring this seed as the germ being small and the hull or chaff large easily attracts moisture, which often produces fermentation, and destroys the germ the best judges are sometimes deceived.

ORCHARD GRASS.

This grass looks much like timothy, except the head which divides into a number of little stems like blue grass; it is coarser and taller than the timothy, unless sowed thick which is a necessary precaution; it may be profitably sown with clover as they come early and ripen together, and by not pasturing it too bare in the fall, produces in the spring the earliest pasture of any grass we have,* and is much esteemed by those who keep Daries for producing early grass butter, it has a large chaffy looking seed; but the light particles may be blown out, it will be necessary to sow from three fourths to one bushel of clean seed to the acre to be profitable; the land should be prepared as for timothy or clover, and may be sowed on wheat or rye, either in the fall, winter or spring, but in the spring or fall it must be harrowed in; it may be also sowed with any of the spring crops as oats and barley; but if sowed in the fall not later than the 20th of September. I have cultivated it with nearly equal success, both fall, winter, and spring, and have had it on my farm about seven years, and think it very suitable for a change occasionally, but the land ought to be rich enough to produce at least five barrels of corn per acre.

MILLET.

Many persons of respectable standing have written very encouragingly about the profit and usefulness of this grain or grass, one of whom is Dr. Coleman of Virginia who says a bushel of seed will weigh about 53 lbs. and separated from the bran will weigh 40 lbs. and more nutritious than the same weight of Indian corn; an account published in a *Philadelpia* paper states the produce per acre to be about 40 bushels of seed and four tons of hay; the right time of sowing is said to be about the first of May. I have not yet sowed any, but have frequently seen it growing, and am inclined to think favourably of its culture, especially as a spring crop, on lands intended for wheat in the fall, as it may be harvested in August. In this neighborhood I should suppose the best time to sow to be about the 20th of April, on ground well prepared and of fertility equal to produce six barrels of corn per acre, on which I would sow about ten quarts of seed, this I think is not too thick it may be the object, but for seed eight quarts are sufficient. I am well satisfied

* Except lucerne or meadow oats; the former requires drill husbandry except in sandy lands, and the latter is rather coarse for hay.

that the hay is preferred to timothy by horses, but it is difficult to cure in wet weather.

ROBERT SINCLAIR.

MORE BACON.

MR. SKINNER,

Having had considerable experience, say nearly half a century, in all "the manipulations," (as Dr. M—e would probably call them) usually exercised upon that most delectable viand denominated "Bacon"—from the killing, cleansing, cutting out, salting, packing, curing, and what is better than all, masticating it, I believe myself tolerably well qualified—although there may be some vanity in the declaration, to speak "understandingly," on the subject. Know then, my good Sir, that your correspondent, Mr. John Darby, run the highly culpable risk of spoiling, or rather causing others to spoil, a quantity of that article which constitutes the staple dish of the Ancient Dominion. He is the less excusable in this particular, because he writes so feelingly on this subject, that I am confident he must be not only an amateur, but one of the cognoscenti both in making and eating Bacon.

The neglect for which I now arraign him before all the lovers of Bacon in the United States, is his failing to caution you that if it is packed "in hickory ashes," they must be *drawn-ashes*, or as sure as you expect, Mr. Editor, to have Bacon for your Christmas Dinner, these ashes will "eat up" (as the old ladies call it) a great portion of the fat in every piece and extract, at least a part of that precious essence which titillates so exquisitely the papillæ of the tongue; and is far superior to all the oils that ever were discovered. In other respects, Mr. Darby's receipt is very good, but unnecessarily troublesome; for among all the varieties of Bacon, Burlington and Westphalia inclusive, which my grinders have ever aided in discussing, the best I ever tasted, was packed in what the old Virginia ladies called "meat tubs," and suffered to remain in the first brine until taken out to smoke. I have eat it more than two years old, as good as it could be, and the management has been what I have just stated. The best salt-beef also, which I have ever seen, was put into the aforesaid brine, as soon as the pork was taken out.

VIRGINIANUS PHILOPORUS.

December 21st, 1821.

RECIPES.

An excellent Recipe for curing Hams.

For ten Hams; one pound of Saltpetre, two pounds brown sugar, three and an half pounds of fine salt; mix all these together, and rub each ham well with it, then pack them down in a tight cask, and let them so remain for three weeks. Then make as much strong pickle as will cover the hams; to which add three gallons of ley; boil and skum this pickle, and when it is cool, pour it over the hams, and let them remain in this pickle for three weeks more, then drain them and smoke them with green hickory.

Another.

For twenty-four hams; six pounds fine salt, three pounds brown sugar, or three pints molasses, one pound saltpetre; mix all these ingredients together, and rub each ham well with them. Pack them down in a tight cask, and let them lay five or six days, then take them out, turn them, pack them down again, and sprinkle them lightly with salt, let them remain five or six days more; make a pickle strong enough to bear an egg, cover them with it, let them remain a month when they will be fit to smoke.

Another.

Four ounces saltpetre, one pound brown sugar, eight pounds coarse salt, four gallons water, boil the whole together, and take off the scum as it rises. When the pickle is quite cold, pour it over the hams, and let them remain in it eight weeks, when they will be fit to smoke.

THE FARMER.

BALTIMORE, FRIDAY, FEBRUARY 1, 1821.

The printer, is just completing the republication of the first and second volumes, of this Journal, to supply the increased demand—as well as to replace the volumes, destroyed by the burning of the Book Bindery. To enable him to meet this expense the Editor, intreats the immediate discharge of all arrears by those to whom the work has been sent, in the assurance and on the confidence of immediate payment. Their compliance will moreover at this time be received as a gratifying evidence of their approbation of his labours. The Editor never desired the patronage of any who may imagine that they are not fully compensated by the contents of the work, neither does he think it generous or fair that any should avail themselves of its contents, without paying for them in advance, that being expressly stipulated for, before they subscribed, and it is obviously more reasonable that an individual, should risk five dollars on the promise of the Editor to pay them value in return than that he should run the risk and incur the expense of collections from all his subscribers having in the mean time, to pay the printer and the paper maker their money from week to week. If he could find adequate terms, the Editor would endeavour to express his profound gratitude to the numerous subscribers, and correspondents who have paid him faithfully, and contributed, he might say almost every thing to the value of his Journal.—It is to their punctuality and to their communications almost exclusively, that he owes the honour of the following recent declaration by a senator of the United States, distinguished as an enlightened politician, practical Farmer, and in the worst of times — *every inch a patriot*. "I rejoice to find that this work, is so highly appreciated—It is becoming the focus of the scattered information and improvements in Agriculture. I hesitate not to say that its countenance and general circulation will be a national blessing, and that you as the projector, and permit me to add the judicious Editor, are entitled to 'the thanks of your country'."

STOCK TO BE SOLD.

A pair of fine YOUNG MULES, three years old—price \$120. Also, the celebrated Treewater Bull BERGMAN—to be sold or farmed out for the season, for sale also, a prize HEIFER, in calf by the Holderness Bull Colombia—for further particulars, enquire of the Editor. Also a few fine PIGS, of the best blood, for breeders—price for them, \$5 each on the farm, or \$20 for three, with house, feed, &c. for any part of the United States.

The Subscriber respectfully informs his friends and the public generally, that he still continues to attend to the pruning and planting of Fruit Trees of every description—making of Composition for the destruction of Worms in Peach and other Fruit Trees—(like-wise Forsyth's). Composition for the Cure of Diseases and Injuries in Fruit Trees of all kinds.

JOSEPH HEUSLER,

On Mr. Lorman's Lot, near the Medical College.

N. B. Planting of Asparagus roots attended to.

Printed every Friday at \$4 per annum, for JOHN S. SKINNER, Editor, by Joseph Robinson, at the N. E. corner of Market and Bevidere-streets, Baltimore, where every description of Book and Job Printing is executed—Orders from a distance for binding, with proper directions, promptly attended to.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL. III.

BALTIMORE, FRIDAY, FEBRUARY 8, 1892.

NUM. 46.

AGRICULTURE.

Extract from Darwin's *Phytologia*

Economy of Vegetation.

THE GROWTH OF SEEDS, BUDS, AND BULBS.

(Continued.)

II. 1. Buds are viviparous progeny. Protected by scales and varnish. Grow by piping with more heat and moisture as they exhale less. Are individual, annual, or biennial plants. 2. Buds of herbs. Evergreens have no bleeding season. 3. Buds of deciduous trees are in different states of maturity, as in hepatica, daphne, osmunda. Some buds are invisible. 4. Importance of the pith like the spiral narrow; it lines hollow stalks. 5. Reservoir of nutriment for buds. Their umbilical vessels. 6. A bud contains many embryos. The first leaf buds often destroyed by insects. The flower-buds only injured by them. 7. Vigorous branches produce leaf buds, weak ones flower-buds. Why seedling apples are long before they bear. Why pears bear only at their extremities. 8. New buds may be made either leaf-buds by topping a part of the branch, or flower-buds by bending the branch down, or cutting a ring in the bark, or strangulating it with a wire. Deharked oaks bud late. Sap juice in the albumen. 9. A pause in vegetation about midsummer. Trees then secrete nutriment in their roots and sapwood for the new buds. Are then best transplanted without topping their branches. 10. Caudexes of the buds from the bark, whose vessel inoculate Heart-wood dies. Sapwood acts as umbilical vessels, and afterwards as capillary tubes, or as capillary siphons. 11. Flower buds perish without increasing the bark by new caudexes. Are convertible into leaf-buds. I getable monsters. 12. Central part of an adult bud.

III. 1. Other vegetable embryos are produced in the buds on the stems or branches of trees, which may be termed the viviparous progeny of plants, in contradistinction to those from seeds, which may be termed their oviparous progeny. These buds are either leaf-buds or flower-buds, or both in one covering; the bud is termed hybernaculum, or winter-cradle, of the embryo shoot, and is covered with scales, and often with a resinous varnish, as in tamarind, to protect it from the cold and moisture of the ensuing winter, and from the depredation of insects.

These by inoculation on grafting on other stems of trees, or by being planted in the earth, become plants exactly similar to their parents. A small glass inverted over these buds, when set in the earth, contributes to insure their growth by preventing too great an exhalation, otherwise they are liable to perspire more than

they can absorb, before they have acquired roots; this the gardeners call piping a slip, or cutting of a plant. In this situation a greater heat may be given them, as in hot houses, without increasing the quantity of perspiration, which ceases as soon as the air in the glass is saturated with moisture; and the increase of heat much contributes to the protrusion of their roots and new buds, as they can at the same time bear to be supplied with a greater quantity of moisture.

Every bud of most of the deciduous trees of this climate may therefore be considered as an individual biennial plant, as distinctly so as a seed; that is, the bud like a seed is formed in one summer, grows to maturity in the next, and then dies. In some trees nevertheless of this climate, as the mock orange, philadelphus, aralia, viburnum; and in the evergreen shrubs or trees, as holly, laurel, vinca, heath and rue; and in all those herbs commonly called annuals; and in the most of the trees of warmer climates; the buds appear to be formed in the vernal months, and to arrive at their maturity during the same year; and may therefore properly be called annual plants.

2. The bud of these herbs, which are commonly called annuals, rises in the bosom of a leaf; and, as it adheres to its parent, requires no female apparatus to nourish it, but gradually strikes down roots from its caudex into the ground, which caudex forms a part of the bark of the increasing plant. This occurs in those herbaceous vegetables, which have just risen from seed; the buds of which are properly individual annual plants, which grow to maturity adhering to the parent, and do not therefore resemble a seed or egg, as there is no reservoir of nutriment laid up for them.

This circumstance also happens, I suppose, to the evergreen shrubs and trees of this climate, as to heath, rue, box, pine, laurel; for in these vegetables, as the leaf does not die in the autumn, it continues to oxygenate the blood, and to supply nourishment to the bud in its bosom during the fine days of winter, and in the spring, and survives till near midsummer; that is, till the new bud has expanded a leaf of its own. Whence I suppose these evergreens lay up in summer no store of nutriment in their roots or albumen for the sustenance of their ensuing vernal buds; and have thence probably no bleeding season like deciduous trees.

But the embryo is a bud of a deciduous plant, leaves in the spring of the year its winter cradle, or hybernaculum, like the embryo in a seed, or a chick in the egg; and like these the young plants of different vegetables have previously arrived at different states of maturity. Thus Mr. Ferber asserts, that he was delighted in observing in the buds of hepatica, and pedicularis hirsuta, yet lying in the earth, and in the gems of the shrub daphne mezereum, and at the

base of osmunda innaria a perfect plant of the future year discernible in all its parts; thus also in horse-chestnut the leaves, and in cornel tree the flowers, are each distinctly visible during the winter in their respective buds. Amen. Acad. Vol. VI. No. CXX. Milne's Dict. Art. Gemma.

While in buds of many other trees, and probably in all the more backward buds, which are formed late in the summer on the lower parts of branches, and much deprived of light and air, the embryo is not so forward as to be easily discernible; and in those shrubs or trees, which are deciduous in this climate, and yet have no apparent buds in the winter, as the philadelphus, mock orange, viburnum, and many shrubs. I suspect there is nevertheless an embryo secreted from the blood at the foot-stalk of each leaf, though it is not so forward as to protrude through the bark, and produce a prominent bud, or hybernaculum. The same I suspect to occur in respect to trees, which lose their leaves in winter, in warmer climates, in which they are said not to produce autumnal buds; as I cannot conceive by what means fresh leaf-buds can be generated in the spring, when the leaves, which constitute the lungs of the mature living part of the tree, are dead; and the whole of the mature living part, or last year's bud, consequently dead along with them. But if the caudex of the new bud be generated without the plumula, or visible bud, it can certainly produce a plumula for itself in the ensuing spring, as is seen by the production of new buds, when a branch is cut off, round the remaining trunk, as is done frequently to the stems of willows.

In similar manner the viviparous offspring of different animals arrive at different states of perfection before they are born, as calves and foals can stand erect in an hour, and quickly learn to use their eyes, and to run after their mothers; while the blind puppy, and kitten, and the downless rabbit, are long before they leave the nest which the parent has provided for them.

4. The presence of the plumula is of great importance to the growth of the new bud, as may be observed by gradually sucking a shoot of a horse-chestnut in the autumn, or in the early spring. The rudiments of the stem separate ribs of the late parent-leaf, and the central pith of the bud in its bosom, are seen to arise or terminate near the pith of the parent shoot, where the embryo plumula is properly secreted by a gland at the bottom of the parent leaf-stalk, finds there its first reception and nourishment, and gradually protruded and elongated by the blood which exists in its centre, as the bud proceeds, and thus constitutes the ascending caudex, or uterus of the new bud; which is resembled by the wires of strawberries, and other creeping vegetables; whereas the descending caudexes of the new buds, which

form the filaments of the bark of trees, are secreted from the various parts of the old bark in their vicinity; all which probably occur at the same time by sympathy, as shewn in Sect. VII.

The pith thus appears to be the first or most essential rudiment of the new plant, like the brain or spinal marrow, medulla oblongata, which is the first visible part of the figure. I believe, of every animal fetus, from the tadpole to mankind.

In those plants which have hollow stems, this central cavity, though not filled with the pith or medulla, appears to be lined with it; as in piceis and trapeogon: in the former the stem is not only lined with the pith, but wherever a new bud is generated on the summit of the ascending stem, or in the bosom of a leaf, a membranous diaphragm divides the cavity, and is covered with this medullary substance, which division thus distinguishes one bud from another; and in slicing away the part of the stem of trapeogon, where the new lateral bud adheres, the medulla or pith in the centre of the bud is seen to commence near that membrane which lines the stem, and to pass through the circle of arterial, venal, and absorbent vessels, which constitute the ascending caudex, or uterus, of the new bud, while the descending caudex of it is secreted from the various parts of the older bark in its vicinity.

Something similar to this mode of the production of the buds of trees had not escaped the ingenious Mr. Bradley, who asserts, "that buds have their first rise in the pith; they are there framed, and furnished with every part of vegetation, and forced forwards to meet the air through the tender bark, and would drop on the ground, if they were not restrained by vessels, which serve as roots to nourish them; and thus as a seed takes root in the earth, a bud takes root in the tree; but with this difference, that the seed has lobes to supply it with nourishment, till it can select juices from the earth; but the bud has no occasion for lobes, because it takes root immediately in the body of the tree, where the proper juices are already prepared for it." Discourses on the Growth of Plants, 1727, p. 56.

5. As the seed was nourished in the pericarp by an adapted secretion from the vegetable blood oxygenated in the bractes or floral-leaves; and as a reservoir of nutriment was also prepared for it afterwards in the seed-lobes and fruit; so the bud is at first nourished in the bosom of its parent leaf by an adapted secretion from the vegetable blood; and continues to be so nourished in annual herbs and evergreen trees, till it protrudes and expands its own leaf; but if it be a bud of a deciduous plant, which must lose its parent-leaf in winter, a reservoir of nutriment is prepared for it in the roots of some plants, as in carrots, turnips, liquorice fern; and probably both in the roots and albumen or sap-wood, of trees.

Thus in the spring the umbilical vessels belonging to each individual biennial plant, or bud of a tree, absorb moisture from the earth, and propel it upwards through the roots and albumen, where it is mixed with a nutritious material, and carried upwards in some trees with a power equal to the pressure of the atmosphere,

as in the vine, vitis; the birch, betula; and the maple, acer, which at that season bleed at every wound, as treated of in Sect. III.

6. At this time the buds begin to swell, and to shoot roots downwards from their caudexes into the earth; the intexture of these caudexes constitutes a new bark over the old one, consisting of arteries, veins, and absorbents, as described in Sect. I. 3. Each bud then also puts forth a leaf, which is a respiratory organ, and resembles in many respects the lungs of animals, as described in Sect. IV, but differs from them in this circumstance, that the leaf requires light as well as air for the purpose of perfect respiration, as will be treated of in the Section on Light.

Each embryo of a leaf-bud is thus furnished with its respiratory organ; and as many new embryos were generated during the summer in each leaf-bud, they now pollulate in succession; each of which has like the first its appropriate leaf, which, as they successively advance, compose the annual shoots or sprigs of trees; which in some plants become of great length, as in vines, and willows, consisting of twenty or thirty new leaves. Hence if the first set of leaves be destroyed by vernal frosts, as frequently happens to ash-trees, fraxinus, and to the weeping willow, salix babylonica; or by the depredation of insects, which often injures our fruit-trees; and perpetually occurs in this climate to the spindle-tree euonymus; and in Italy to the white mulberry-tree, which has its first leaves plucked off for the food of silkworms, and to the tea-tree in China; a second set of leaves succeeds, which belong to the second embryos of the same bud.

But when the bractes or floral-leaves are destroyed by insects, as sometimes happens to currant-trees, and apple trees; the fruit in the pericarp does not perish, like the first embryo of the leaf-bud above mentioned; because it is still supplied by the absorbent system of the caudex and roots of the flower-bud, which compose a part of the bark, and pass into the ground; but the fruit becomes sour and less perfect from the want of a due oxygenation of the juices, from which it is secreted; though its glands may probably also receive some oxygenated blood by the insinuation of the vessels of different buds, whether flower buds or leaf-buds, with each other in the bark, on supposition that they are not all of them totally destroyed.

7. In the axilla of each leaf is generally produced about mid-summer either a new leaf-bud or a flower-bud; if it be a leaf-bud, it becomes a branch the next year, producing many other leaves, and many other buds; if it be a flower-bud, the growth ceases, terminating in the seed. During the greater vigour of the plant the leaf-buds are solely or principally produced, as in young healthy trees, but when the vessels of the bark become further elongated, as the plant grows taller, the nutritive juices are less copiously supplied, or the buds are become more mature, and the production of flower-buds succeeds as in Mr. Walker's experiments the sap of the birch-tree in the spring was two or three weeks later in ascending

to the top of a high tree, than to the lower branches. Edinb. Transact. Vol. I.

Hence it happens, that the grafts from strong seedling apple-trees do not bear fruit, till they are twelve or twenty years old; while the grafts from old weak trees will bear copiously in two or three years, and hence very vigorous trees, as pears, produce fruit only at their extremities; not if you decorticate about an inch of a branch of a vigorous pear-tree, and thus weaken it; that branch will flower, and bear fruit at every bud like trees of less vigour.

It should be here observed, that the words strength and weakness, when applied to the growth of vegetables, are in reality metaphorical terms; or express the effect or consequence of their producing leaf-buds or flower-buds, rather than the cause of it, whereas it is the facility with which the long caudexes of the new buds, which form the new filaments of bark, can be generated, which increases the number of leaf-buds, and gives the tree a luxuriant or vigorous appearance; and the difficulty of generating these new caudexes which increases the flower-buds, and thus gives a less vigorous appearance to the tree.

The generation of buds seems to require a less perfect apparatus than the generation of seeds; as that of buds always precedes that of seeds, both in trees and herbs; and because the caterpillar is converted into a butterfly solely for the purpose of seminal propagation; whereas the polypos can only propagate laterally, or by buds. Hence the age of the plant is another necessary circumstance to the production of flowers, fruit, and seeds, as appears in tulips, and hyacinths, as well as in apple trees and pear-trees.

8. About midsummer the new buds are formed; but it is believed by some of the Linnean school, that these buds may in their early state be either converted into flower-buds or leaf-buds, according to the vigour of the vegetating branch. Thus if the upper part of a branch be cut away, the buds near the extremity of the remaining stem, having a greater proportional supply of nutriment, and possessing a greater facility of producing their new caudexes along the bark, will become leaf-buds; which might otherwise have been flower-buds; and on the contrary, if a vigorous branch of a wall-tree, which was expected to bear only leaf-buds, be bent down to the horizon or lower, it will bear flower-buds with weaker leaf-buds, as is much exemplified by Mr. Hitt in his Treatise on Fruit Trees.

The theory of this curious vegetable fact has been esteemed difficult, but receives great light from the foregoing account of the individuality of buds. Both the flower-buds and leaf-buds die in the autumn; but the leaf-buds, as they advance, produce during the summer other leaf-buds or flower-buds in the axilla of every leaf; which new buds require new caudexes extending down the bark, and thus thicken as well as elongate the branch; whereas the flower-buds shed their seed, when they perish in the autumn, and thus require no place on the bark for new caudexes. Hence when the summit of a branch is lopped off, the buds near the extremity of the remaining stem produce new leaf-

buds of a great facility, as there is more room for their new caudexes to be generated along the descending bark. But if a vigorous branch be bent down to the horizon, or below it, the bark is compressed beneath the curve, and extended above it, and thus the production of new caudexes along the bark is impeded, and in consequence less leaf-buds and more flower buds will be generated, or the former converted into the latter, which require no new caudexes. And on this circumstance principally depends the management of wall fruit trees, and of espalliers.

For the purpose of thus converting leaf-buds into flower-buds Mr. Whitmill advised to bind some of the most vigorous shoots with strong wire, and even some of the large roots; and Mr. Warner cuts, what he calls, a wild-work about the body of the tree; or scores the bark quite to the wood like a screw with a sharp knife. Bradley on Gardening, Vol. II. p. 155. Mr. Fitzgerald produced flowers and fruit on standards and wall-trees by cutting off a cylinder of the bark, three or four inches long, and replacing it with proper bandage. (Philos. Trans. Ann. 1761) as described in Sect. XV. 1. 5. of this work. M. Busson produced the same effect by a straight bandage put round a branch. Act Paris, Ann. Ann. 1738; and concludes that an ingrafted branch bears better from its vessels being compressed by the callus produced, where the grafted scion joins the stock.

It is customary to debark oak-trees in the spring, which are intended to be felled in the ensuing autumn; because the bark comes off easier at this season, and the sap wood, or alburnum, is believed to become more durable, if the trees remain till the end of summer from their expending their saccharine sap-juice in the ensuing foliage, and thus being less liable to ferment and putrify. The trees thus stripped of their bark put forth shoots as usual with acorns on the sixth, seventh, and eighth joint. like vines; but in the branches I examined the joints of the debarked trees were much shorter than those of other oak-trees; the acorns were more numerous; and no new buds were produced above the joints which bore acorns.—From hence it appears that the branches of debarked oak-trees produce fewer leaf-buds, and more flower buds; which must be owing to the impossibility of their producing new caudexes down the naked branches and stem for the embryon progeny of leaf-buds.

The putrefaction of leaves on debarked oaks demonstrates, that the reservoirs of nutriment deposited in the preceding summer for the use of the vernal buds must be in this alburnum; and that it is this saccharine matter which induces the alburnum to ferment and rot sooner than the internal wood. Thus Dr. Walker found on nice inspection the sap-juice to flow from the ligneous circles of the alburnum, as well as between them, when a fresh piece was cut off from a cicatrized part, and also between the wood and the bark. Edinb. Trans. act. Vol. I. He also observed that oak, ash, elm, aspen, hazel, and hawthorn, do not bleed; and that the birch, plane, and maple bleed the most, and that the great willow, salix caprea, does not bleed, but the sap-juice rises visibly

between the wood and the bark, so as to make the bark separate easily from the wood. From all these facts it may be inferred, that the saccharine matter, which is dissolved in the sap-juice, is deposited in the autumn in the roots of some trees, and in the alburnum of others, or in both; as manna is found in the wood of the manna-shrub; and sugar in the joints of many grasses, and of the sugar-cane, and in the roots of liquorice, beets, and many other herbaceous vegetables.

9. About Midsummer, after the new buds appear in the bosom of every leaf, many authors have remarked that there seems to be a kind of pause in vegetation for about a fortnight, which they have ascribed to different causes. At this time I suspect a reservoir of nourishment for the new buds is forming about the roots or in the alburnum of the tree; and that the caudexes and umbilical vessels of the new buds are also at this time forming down the bark, and terminate in those nutritious reservoirs in the roots or new alburnum like the umbilical vessels called seminal roots, which are visible in many seeds.

That this system of umbilical vessels is possessed of a great power of absorption in the roots of trees is certain from the force, with which the sap-juice was propelled upward from a vine-stump in Dr. Hales' experiment. That the sap-juice thus propelled upward nourishes or expands the leaf of each new bud appears from the experiments of Dr. Walker; as the leaves began to unfold at the same height, as the wounded wood began to bleed, and that these vessels pass through or constitute the sap wood is evinced by the growth of the buds on oak-trees, after the bark is almost totally taken off.

The roots of trees are at this time protruded with greater vigour, as observed by the ingenious Mr. Bradley, who on that account prefers to midsummer for transplanting trees, if they are not to be removed to any great distance; and adds, that the new shoots in the following spring will put forth with much greater force, and the tree will thence be almost a year forwarder in its growth, than if it remains untransplanted till the winter. Discourses on Earth and Water. This seems to be owing to the destruction of much of the nutritious matter deposited in the roots for the use of the new buds, which is torn off in transplanting, and which can only be replaced about midsummer or soon after.

Mr. Bradley further adds, that when trees are thus transplanted at midsummer, no part of the top of branches, or foliage, should at that time be cut off; which well accords with the theory above delivered; as it is from the vegetable blood, which is oxygenated by its exposure to the air through the thin moist pellicle on the upper smooth surfaces of these leaves, that the nutriment for the expansion of the buds in the succeeding spring is secreted or produced; and hence if these leaves are prematurely destroyed, the vernal growth of the buds must receive injury; as the reservoir of future nutriment for them will be less in quantity; but if some of the branches are lopped during the winter, the remainder will protrude

more vigorous shoots, as in

10. The umbilical vessel of the new buds of deciduous trees, which are analogous to those which permeate the lobes of the seed, are extended downward in the bark about midsummer, and terminate in certain reservoirs of nutriment, which are at this time secreted from the vegetable blood oxygenated in the leaves. This bark now consists of an intertexture of the caudexes of the present leaves, which were buds in the last summer, and are now a soft vegetable beings; and of the embryon caudexes of the new buds; and of the umbilical vessels of the new buds; it will become alburnum or sap-wood during the autumn or ensuing spring, and will be gradually covered over with a new bark consisting of the mature caudexes of the new buds, while that, which was the alburnum in the preceding spring, will become a circle of lifeless timber, interior to the circle of alburnum.

The vessels of this new bark, though they consist of the caudexes of the individual adult leaves, and the umbilical vessels of the individual young buds, evidently insulate; because, when some buds are rubbed off or destroyed, those in their vicinity grow with greater vigour; as the daily experience of pruning all kinds of trees evinces. The facility with which the ruptured vessels of vegetables insulate into each other, or grow together, corresponds with that of animal vessels in their inflamed state. Thus a bud taken from one tree, and inserted into any part of the bark of another tree of the same genus, or ingrafted on it, presently receives nutriment, and grows to it by the reciprocal insolation of the wounded vessels, in the same manner as a transplanted tooth; or as the fingers are liable to grow together after having been excoriated by a burn; or as the inflamed lungs and pleura are liable to adhere, and intermix their blood-vessels. See Sect. III. 2. 7.

During the winter, when the leaves die and fall off, the arterial and venous systems, which belonged to them, and which composed the greatest part of the bark, seem to lose their vegetable life at the same time, and to coalesce, and form the alburnum, or sap-wood; but the umbilical vessels belonging to the new buds, which are intermixed with this alburnum, remain alive; and at the returning spring act with astonishing vigour; as described in Sect. III. 2. 2.

As the spring advances, the umbilical vessels after having drunk up the reservoirs of nutriment, which were deposited about the roots, and having thus nourished and expanded the new leaves, cease to act; and the alburnum gradually changes into hard wood, called the heart of the tree; which no longer possesses vegetative life; and is now only useful to elevate and sustain aloft the swarm of biennial plants, which cover it; and was probably originally produced for this purpose in the contest of all vegetables for light and air.

This inert or lifeless state of the central parts of trees, called the heart-wood, is evident from those old oak- and willows, which have lost their internal hard wood, and are become

quite hollow, consisting only of their bark and albumen, and yet are furnished with many healthy branches. But the umbilical vessels of the albumen possess the properties of capillary tubes, or of a sponge, after they are extinct, and cease to act as umbilical vessels; and thus may occasionally attract moisture, or suffer it to pass through them mechanically; whilst the new bark, which consists of an intertexture of the caudexes of each bud with their radicles, may occasionally absorb this moisture from the capillary vessels of the albumen, which may be compared to the upper stratum of the soil attracting by capillary power the moisture from the soil immediately beneath it, which may exhale into the atmosphere, or be imbibed by the roots of vegetables by the superior living power of their absorbent mouths.

That the vessels of the albumen in their living state possess the property of conveying the sap juice, which is propelled upwards in the early spring by the absorbent terminations of the roots, is visible in decorticated oaks; the branches of which expand their buds, like those of the birch and vine in the bleeding season.—That the vessels of the albumen in their living state occasionally act as capillary syphons, through which the sap juice is first pushed upwards by the absorbent extremities of the roots, and afterwards returns downwards partly by its gravitation in branches bent below the horizon, appears from an experiment of Dr. Walker, mentioned in Sect. III. 2. 4.

Lastly, that the vessels of the albumen after their vegetable life is extinct, possess a power of capillary attraction to the sap-juice, or permitting it to pass through them occasionally, appears from the following experiments. First, a branch of a young apple-tree was so cankered, that the bark for about an inch quite round it was totally destroyed. To prevent the albumen from becoming too dry by exhalation, this decayed part was covered with thick white paint; in a few days the painting was repeated, and this three or four times, so as to produce a thick coat of paint over the decayed part, or naked albumen, extending to the ascending and descending lips of the wound; this was in spring, and the branch blossomed and ripened several apples.

In a garden in Lichfield about four years ago a complete cylinder of bark about an inch long was cut from a branch of a pear-tree nailed against a wall; the circumcised part is now not more than half the diameter of the same branch above and below it; yet this branch has been full of fruit every year since, when the other branches of the tree have borne only sparingly. I lately observed, that the leaves of this wounded branch were smaller and paler, and the fruit less in size, and ripened a fortnight sooner, than on the other parts of the tree. Another branch of the same tree has a part of the bark taken off about an inch long, but not quite all round it, with much the same effect.

The existence of capillary tubes in dead sap-wood is visible in a piece of dry cane, which permit water or smoke to pass through them; and in the exhausted receiver of an air pump both water and quicksilver may be made readi-

ly to pass through pieces of the dry albumen of wood by the pressure of the atmosphere.

11. The flower-buds of many trees arise immediately from the last year's terminated shoots, or spurs, either accompanied with leaf-buds, or separately, as in apple and pear-trees. Other flower buds arise from the shoots of the present year alternately with leaf-buds, as those of vines, and form the third or fourth buds of the new shoots. They differ from leaf-buds in this circumstance, that they perish when their seeds are ripe, without producing any addition or increase to the tree; whereas when the leaf-buds perish in the autumn, their caudexes, the intertexture of which constitutes the bark of the tree, gradually become converted into albumen, or sap-wood; over which the new leaf-buds shoot forth their caudexes and radicles, or insert them into it, and gradually fabricate the new bark and root-fibres.

It was before mentioned, that it is believed by some disciples of the Linnean school, that about midsummer leaf-buds may be changed into flower-buds or flower-buds into leaf-buds; and that even after the vegetable embryos are generated. And that this may be effected by weakening or strengthening the growth of the last year's buds, which secrete these new ones from the vegetable blood, and nourish them in their infant state. Thus if some inches of the extremity of a branch be lopped off at midsummer, as is sometimes done by unskilful gardeners, the remaining few buds will become more vigorous, and consequently produce leaf-buds instead of flower-buds; or perhaps the embryos already formed may be converted from one kind to the other. The contrary may occur, if a vigorous branch of a wall-tree be bent down beneath the horizon, or so much as to impede the generation of new caudexes; or if the leaf of the parent-bud be taken off, soon after the plumula or apex of the new bud is generated; and thus the new caudex along the bark may be prevented by deficiency of nutriment.

The probability of this idea of transmuting flower-buds into each other is confirmed by the curious conversion of the parts of the flowers of some vegetable monsters into green leaves; if they be too well nourished, after they are so far advanced as to be unchangeable into leaf-buds. Thus in the plantago, rosea, rose-plaintain, the divisions of the spike become wonderfully enlarged, and are converted into leaves; the chaly scales of the calyx in xeranthemum, everlasting, and in a species of dianthus, pink, and the glume of some alpine grasses, and the scales in the ament of the salix rosea, rose willow, grow into leaves, and produce other kinds of vegetable monsters.

Add to this, that the petals of the helleborus niger, or christmas-rose, are beautifully white till the seed is impregnated; and then they change into green leaves, forming a calyx.—And lastly, in other flowers a bulb or bulb succeeds the impregnation instead of a seed, as in polygonum viviparum, viviparous bistort; and in allium magicum, magical onion; the same occurs in many of the alpine grasses, and in the festuca dimetorum, fescue grass; all which are in some degree analogous to the supposed

conversion of early flower-buds into leaf buds; for in these magical onions, and other bulbiferous flowers, the bractes or floral-leaves, which at first secrete nourishment for the pericarp and seeds of the plant, assume a new office, and secrete a magazine of nourishment for the new bulb, as appears in the concentric fleshy membranes, which surround the new summit-bulbs of the allium magicum, and the cloves of garlic.

12. The central part of an adult bud therefore consists first of a conjunction of the blood-vessels from above and below, which exists in the caudex of the bud between the beginning of the leaf-vessels and the beginning of the root vessels; the circulation resembling that of many insects, of fish and in the livers of quadrupeds, as shewn in Sect. V. 2. Secondly, there is probably at the same place a conjunction of the absorbent vessels correspondent to the receptaculum chyli of animals. Thirdly, there exists in each bud an organ of reproduction, which in a leaf-bud produces the lateral or paternal offspring, and in a flower-bud the seminal or amatorial one. Fourthly, a centre or nervous influence, as a brain, or spinal marrow, or common sensorium, exists in each bud; and probably resides near this junction of the blood-vessels of the leaf and root, and of the absorbent system, along with the organ of reproduction in the caudex gemme.

PROCEEDINGS OF THE Massachusetts Agricultural Society, Relative to the rates of duty on the Tariff, lately proposed to Congress.

At a meeting of the Board of Trustees of the Massachusetts society for promoting Agriculture, held at the hall of the Union Bank, September 11th, 1820.

It having been presented to this Board by various persons connected with Agriculture, that the rates of duty in the Tariff lately proposed to Congress and which will probably be renewed at the next session, will so materially and injuriously affect the interests of Agriculture, that it is the duty of this board to take the same into consideration, and to invite the attention of the Agricultural interest of Massachusetts to the subject; and this Board, desirous to ascertain the opinion of the various representatives and friends of Agriculture, throughout the Commonwealth, and to unite with them in such measures as they may mutually deem wise to be adopted, in relation to the said tariff—*Thereupon voted*; that the Corresponding Secretary be a Committee to address letters to the various Agricultural Societies within the Commonwealth, stating the general views of this board in relation to the effect of the proposed tariff; and requesting, that they would, if they concur therein, adopt such measures and make such suggestions to this board, as they may deem expedient to prevent, as far as the just agricultural influence of Massachusetts extends, the passing of any tariff which has a tendency farther to distress the agriculture of the United States. Unanimously voted.

Extract from the Records.
BENJAMIN GUILD,
Assistant Rec. Sec. of the Massachusetts Society for
Promotion of Agriculture,
September 11th, 1820.

ROXBURY, Sept. 12. 1820.
SIR—By the inclosed vote of the Trustees of the Massachusetts Society for promoting Agriculture, you will perceive that it was made my duty, not only to transmit the vote itself, but to subjoin the considerations and arguments, which had induced the Trustees to request your serious attention to the subject therein referred to. It is not the wish of that Board to interfere with any measures of the National Go-

verment, except so far as they may be supposed to affect materially the interests of Agriculture. If the question had been confined simply to the respective concerns of Commerce and Manufactures, they certainly should have deemed it their duty to permit the parties who are immediately interested to contest the question between themselves and respectively to urge upon the National Government, the arguments and considerations which they might deem best adapted to promote their own views. The Massachusetts Agricultural Society have uniformly held the opinion that the interests of Agriculture, Commerce, and Manufactures were inseparably united. They still adhere to the same sentiment. As a consequence of this opinion, they have always deemed it unwise and impolitic in the advocates of either of those branches of industry, to endeavour to obtain any peculiar, and still less, any exclusive privileges, either by bounties, protecting duties, or by any other means in the power of the Government to use or grant, to the manifest disadvantage of the others. The only healthful growth, which either of them can expect to enjoy unimpeded, for any great length of time must be that which shall be produced by an equal, liberal, and just encouragement of them all. That the Trustees of the Massachusetts Agricultural Society have always been friendly to the growth and prosperity of the infant manufactures of our nation, is demonstrated by the fact, that unsolicited by any person connected with manufactures, they applied to the legislature of this State for a grant, to enable them to award premiums to those who should appear to have excelled in any of the manufacturing arts; and they have annually applied a fair and full share of their premiums and time, in promoting and recommending to public patronage and favor, various branches of our manufactures. They may therefore fairly claim for themselves the character of impartiality; and if, in the remarks which follow, there may appear to exist an opposition to certain new, and as it is feared, impolitic demands, impolitic even for the manufacturers themselves, it is presumed, or at least hoped that it will be attributed to a serious apprehension, that the public, mutual, and general interests of the three great classes of society, will suffer from their adoption.

It is well known, that the *Agricultural part* of the American people constitute, as nearly as can be ascertained eight millions and a half of the whole population estimated (as it is presumed it will prove to be by the present Census,) at ten millions. Their scattered situation, the few opportunities they enjoy of exchanging opinions, the great difficulty of combination in consequence of these disadvantages render it very easy for the merchants and manufacturers, who are always in motion, and in correspondence, who have capital, and every facility in combining their efforts, to produce a temporary, and, in some cases, a permanent effect on public opinion, and especially on our rulers which the quiet cultivators of the soil cannot check or control.

From this cause have resulted all the restrictive laws of great Britain, France, and of many other European States. But it is a singular fact, that these nations are all of them opening their eyes to their folly, and the ruinous effects, of the series of restrictive regulations which have cramped their Agriculture, and are making strenuous efforts to get rid of them; while we, with this example before us, are urged to enter into the same course of policy.

We have said that it has been supposed to be against the interests of the manufacturer to themselves, to carry their point to obtain a momentary triumph over Agriculture and Commerce—and on this ground, that, as it is probable all the European nations will speedily abandon this restrictive system, and as our country is so alive to its interests, and so readily generally to discern them, it will not be possible long to support an erroneous system; it is therefore as impolitic as it is unjust, to attempt to procure, at the expense of Agriculture, a temporary and artificial support. The Farmer will soon perceive, from the enhanced prices of every thing which they consume, and the diminished value of every thing which they raise that they have been overlooked or betrayed. They will soon express that opinion in a voice too audible to be despised,

and the repeal of all the protecting duties will plunge the manufacturers in deep and irrevocable ruin.

We have said, that it is very difficult for the farmers to collect together and exchange opinions. They are sound and wise in respect to their interests, when their interests are laid open to them; but they have not the means of mutual communication—they have nothing like "Clamours of Commerce"—or the *organized, active, persevering associations and incorporations of manufacturers*. Agriculture has no organs except the few Agricultural Societies. And should they be silent, if they sincerely believe that agriculture is in danger? That her chains are forging though not yet applied to her feet and hand?

The foregoing remarks, it is presumed, will be deemed a sufficient apology for calling your attention to the subject. We do not presume to anticipate your decision; we simply invite you to weigh the arguments adduced. It is, however, but a small part of them that your limits will permit us to urge; we mean the limits of respect for you, convinced as we are, that your own good sense will suggest many more powerful ones.

It is obvious, (so at least many persons believe) that we can never expect to sell our own surplus productions in foreign countries, if we refuse to consume those productions of other nations, which they can raise cheaper than we can. And the whole history of modern nations, since commerce has been well understood, and the principles of it settled, proves, that the wealth and prosperity of nations depend chiefly on the facility, with which what is raised in one country of any commodity, more than it needs, is exchanged for the produce of another. This it is which constitutes *commerce*; and this alone it is, which enables any country to raise one article of any commodity more than its necessities require. This important truth is made very manifest, by referring to the case of an individual farmer. If he never sell that part of his produce which exceeded his own wants—he would have no inducement to raise it—his cultivation would be reduced to the smallest amount which his own family could consume—and where would be the surplus left for the payment of his taxes, for the amelioration and improvement of his estate, and for the provision of his numerous family? The same thing is true as to whole communities, and the farmer is as much interested in having a free export to foreign countries, and a ready demand there for his productions, as the merchant is. The merchant, in fact, is only his carrier or factor. Check commerce, and the prices of all domestic articles fall. If the price of Butter falls in the Havana or in Charleston, it is felt as soon as known, in Worcester and in Berkshire.

But it is said, that by encouraging manufactures at home by extravagant protecting bounties,—we create a home market for what we raise—or in other words, that the mouths employed in factories, will consume all that the farmer can raise over his own wants. "We plant the consumer by the side of the manufacturer." Is the last an honorable phrase? Were this even true, it would be better for the farmer to have two markets, instead of one. If the one market at home will afford him five dollars an hundred for his beef, the foreign market would add to this price, and enable him to get seven; or at least it would enable him to raise more.

But this is comparatively but a feeble part of the argument, though it is believed to be sound. Ought it to be overlooked, that, if manufactures should be established and forced into an unnatural growth by means of a heavy tax on the rest of the community, it will take at least half a century, before capital will be so far diverted from other pursuits, and so much accumulated in manufactures, before the habits and employments of so large a portion of the community will be wholly changed, so as to furnish a home market for all the surplus of our own productions, which at present amount on an average to more than six millions of dollars. And if this be true, what in the mean time is to be the condition of the farmer, while the manufacturing system is building up? The manufacturers are now led by the farmers. They raise enough for the consumption of every man and wife and child in the United States, and as much more. They bring back into the country, either in money or in

consumable productions of foreign countries, to the amount of fifty or sixty millions of dollars. Pass this law, and it is feared and believed by many considerate persons, that you put an end to your export trade—and for this reason, of which every farmer will feel the force; if we buy nothing of other nations, they cannot afford to buy of us. It is by what they sell to us, that they are enabled to purchase. If a farmer could sell neither his hay, or his stock, or his butter, or his grain, how could he possibly afford to buy any articles which he did not raise himself? Even with the present export of fifty millions, it is perceived how much the prices of land, and of produce have fallen, owing in a very considerable degree to the existing high tariff or tax, laid in 1815 on the imported articles which we consume, and to the apprehension of the still greater one, that is threatened. What then must be the effect on the prices of land and produce, if all our export trade is either cut off, or so cramped as to be abandoned as unprofitable? Is it not obvious, that as many acres will be thrown out of cultivation, as are now employed in raising fifty millions of dollars of our own produce, which we now export, after feeding ourselves and families, as well as the merchants and manufacturers? And if they are so thrown out of employment, will it not take a long period of years to reclaim them again from a state of wilderness, to bring them to a fertile condition?

Or will it be alleged, that the great spring given to our own manufactures will soon increase the number of manufacturers to such a degree, as to take off as much surplus produce as we now export to other nations, and thus keep up the price of produce and lands? From what class, or what country, are these laborers to be drawn? If from our own country, they cannot be supplied for many years. Men must be created according to the laws of nature and as we now feed the ten millions of inhabitants in the United States, we do not see where those are to be found, for many years, who will consume what is now consumed in the West Indies and in Europe.

Or will it be openly avowed, that the new scheme of taxing agriculture and commerce will render them so unprofitable, as that the wages of labor will fall in those branches of industry, and thus compel the laborers to seek out the manufacturers for employment and higher wages? The intelligent and honest advocates for this forcing system will add, "thus only the poorest lands, which now yield little profit, will be thrown out of employment, but the present value, and perhaps an higher one, will still continue for lands in the vicinity of the great manufacturing establishments." There is some truth (we admit) in this, but is it considered justifiable thus violently at once, by an act so unheard of in its extravagance, to change all the relations of property? To diminish the value of cultivated farms in one quarter of the country, or in the country at large, and to increase their value in particular spots? And for what great national good is all this evil to be endured, this injury inflicted on agriculture, this injustice and partiality manifested in our legislation? Is it because labor bestowed on manufactures is so much more profitable for the nation? Then it needs not its bounty and patronage. Or is it because the situation of the actual laborer in any manufacture is more independent, or that the employment is more healthful, better adapted to our system of government, better suited to the preservation of moral purity, than the cultivation of the land? Is it or is it not true, reasoning without the aid of the dreadful experiments which have been made in Europe, that a sedentary confined life is generally esteemed unhealthy? That the collection of three or four hundred persons in one or two edifices, together with the artificial heat often necessary to the successful prosecution of some manufactures, has been deemed very injurious to health and as tending not only to shorten human life, but to embitter it while it lasts? Is it probable, that virtue is promoted by the daily intercourse of large numbers of inexperienced persons of both sexes, more than in the quiet and less temptingly situated state of family life? It is not intended to urge these arguments as far as they may be pressed, nor to bring into the question the scenes, which have lately con-

vulsed the greatest manufacturing country in the world. These ideas are only intimated, in order to induce the agricultural part of the community to consider, whether there are any reasons sufficiently powerful to induce us to change our existing habits, and to form others to which we have as yet been strangers? In this view it may further be asked, what proportion of the community will be benefited, even by a successful cultivation of manufactures on an extensive scale? To prosecute them with success great capital is required, and it would not be extravagant to say, that the owners of this capital, the men to whom the profits will go, will be to the laborers employed in them, in the ratio of one to one hundred. If then the government shall tax the whole community, so as to make them pay for an article which they consume from fifty to one hundred and fifty per cent. more than they would pay under a free and unrestricted trade, *who are the gainers?* Not the one hundred laborers, for competition will reduce their rate of wages, as it has in England to the lowest possible point at which they can be subsisted, and all the profits will go to the capitalist who employs them.

Hence, instead of 100 respectable citizens earning a decent and comfortable support with perfect independence, as in the agricultural system, you will have one very opulent individual, and one hundred dependent on his will, his interest, or his success. When the manufacturing capitalist fails, the 100 laborers are thrown out of employment; or if he finds the markets against him, he dismisses fifty of them, and they are thrown on the wide world, or their friends, or the towns, for their support, until again called into employment by the interest or caprice of the manufacturing capitalist. Such at least is the picture, and the true picture, which Europe has exhibited; and have we any right to suppose that the same causes will not produce the same effects among us? If there are any such reasons to distinguish our case, we have not seen them urged.

It will be seen, that in this very imperfect picture of the effects which will be produced by a law, the avowed object of which is not *revenue*, but *bounty*, to one and that the smallest in point of numbers of the three great classes of industry, we have omitted many very important considerations which have a close and powerful connection with the question.

We have as yet only attempted to shew its direct bearings, and its immediate and more violent operations on the agricultural interests, by the reduction of the price of its products; the consequent diminution of the value of land; the increase of its expenses, while its profits are lessening, by drawing off the laborers who would have been devoted to agriculture, and thus enhancing or raising the price of agricultural labor.

We have now to add, the still more ruinous increase of price in all the articles which the farmer consumes, and which heretofore he has derived from some of his valuable customers, *foreign nations*, but which he cannot profitably raise, or produce, or manufacture himself.

The farmer is, according to the new tariff or tax, like a candle lighted at both ends. His revenue or income will be lessened while his expenses will be increased. It is obvious and incontrovertible, that if our capitalists who prefer to invest their capital in machinery, and in the safe routine of home industry supported by the bounty of the state, and encouraged at the expense of all the other classes of society, can afford the articles which they manufacture, at as cheap a rate as that at which other nations can afford them, and send them to us, they do not need any further aid. And if we now pay them directly from 25 to 100 per cent. profit more than the same articles would cost us without any duty, is it reasonable we should do more? Is it not a most wasteful expenditure of *American labor?* If the same labor employed in agriculture and in commerce, which is its handmaid, would procure for us half as much again of these productions, as we are now obliged to pay to our own manufacturers, or procure what we need for half the money we now pay, is it not apparent that we as a nation, and especially that the farmers, are sufferers?

A farmer, who enjoys some ease of circumstances, is compelled to conform in some degree to the usages, fashions, habits of the age. He cannot endure to see his children less decently or tastefully clothed than those of his neighbor. If his daughters were forced by him to cloth themselves in homespun garments, such as were worn fifty years since, he would hear incessant complaints. Murmurs—even acts of disobedience would be occasionally witnessed. It may be said that *this economy should be the policy of the farmer*, and that he ought to repress this modern extravagance and luxury. Much is to be said on this question. Consumption and an improved style of living are incentives to exertions; they indicate an improved state of society. The more our comforts and innocent indulgences are extended, (in all cases, however, limited to our means,) the greater will be the industry, the more rapid the progress of a nation in wealth and prosperity. Besides, it is not in the power either of rulers or individuals to effect much in the general habits or usages of society. Poverty, the absolute inability to procure these comforts, is the only check, and it is one which very few of us would be eager to see in operation. While the reformers' manners and usages continue as they are, and as our very unexampled success has made the *our farmers'* daughters must have their calico or clintz, or even silk gowns, for dress occasions at least. By the *exporting* taxes they pay on some of them one hundred per cent. duty—and they are now called upon to pay from 30 to 50 per cent. more.

Of necessity the farmer is obliged to sell as much more corn and pork, to procure these articles, than if the trade was free. This is only one part of his burdens. Just in proportion as the foreign article is excluded by extravagant duties in favor of the home manufacturer, in the same ratio are our exports diminished, and the price of our own products reduced. So that he not only has to pay to a capitalist of his own country a double price for a given article, to that at which he could have obtained it without any protecting bounty to manufacturers, but he is compelled to sell double the amount of his own produce to procure it. Thus, in effect, he gives twice double labor to procure that for which one would be sufficient. This is apparently unreasonable; and though the farmer is like Isaac Har, destined to bear eventually all the burdens of the state, it seems to be unreasonable thus to overload him.

Mark the contrast. While this system operates thus severely on the cultivator of the soil, who by his labor puts *every loom* in motion, and by his industry, sends *every ship* to sea, the reverse is the effect of this proposed law for new duties, on his neighbor in the manufacturing line. While he gains double what he would have gained on his gingham, his sheeting, his calicoes, if there had been no duties, he buys the farmer's produce to feed his laborers, at half the price he could have bought it for had the trade been entirely free. Is this just? Will it long endure, even if adopted? Can the farmers be long insensible to the ruinous effects of these laws?

Should it be said, that *even with these encumbrances*, the manufacturers are still starving? Shall we look round about us and see their stock at 50 per cent. loss, and not pity them? Why do you speak about profits of manufactures, when men, we know, are ruined by them? My answer is, that if this be the fact, it proves only the improvidence, want of skill, want of capital of those who are embarked in them. It shows also clearly that we began too early, and are pressing on too fast. To buy cheap and sell dear, is a rule that every farmer knows is necessary to success in private life. Why is it not as true as to communities?

These various considerations could be extended, urged, and enforced, far beyond what I have been able to do. It might be shown, that for every thing the farmer consumes, he pays a tribute far beyond what is necessary for the national revenue. That he is in fact supporting by bounties, many of the manufacturers of his country.

I shall conclude with an important remark.—This system, of which we now doubt the justice and policy,

is, we have reason to believe, brought forward against the opinion of the executive government of the United States. Mr Crawford, secretary of the treasury, we know made a report to Congress highly adverse to it, in which he intimated that its tendency would be to *lessen the revenue*. Yes; to lessen the revenue, while it *increased the tax*! A strange idea at first blush, but perfectly true. It will lessen the revenue by diminishing importations, and of course, as we have endeavored to shew, by *lessening our exports of our own produce*. It will lessen it also by increasing the excitements to smuggling, to cheat the revenue; thus at once diminishing its receipts while it injures the morals of the people, and enfeebles the powers of government. He intimated, moreover, that by the diminution of revenue, direct taxes would become necessary; taxes on houses, lands, horses, carriages, and the various other objects formerly subjected to such burdens—taxes naturally disagreeable to our citizens, and very expensive in their collection. Thus, while the farmer is to sell cheaper, and to suffer in the fall of his estate, to pay more for what he consumes; for his iron, steel, hardware, sheetings, shirtings, fine woolsens, and fine cotton goods, he may be subjected to a direct tax on his real and personal estate, at the moment when he is less able to meet them. The revenue of the government last year was incompetent to its wants, and a loan of three millions was made to meet the current expenses. This is a fact which cannot deceive us.

After all, sir, it is my duty to add, that although I could have extended these remarks far beyond what I have done, yet I am not certain that I have expressed correctly the views of the Trustees of our Society. I may have pressed some of the arguments farther than they would approve. I may have omitted many important ones that would have been suggested by them. I fell to my lot to perform this duty, not because I was in any degree as well fitted for the task as others of that board but because by their favour I was in a situation, which rendered it proper that the duty should devolve on me.

I am happy however in the reflection, that in the various societies to whom this letter will be sent, there will be found men capable of treating the subject with more profoundness, more closeness of argument, and a greater power of persuasion than I have been able to do.

I have the honor to be sir, very respectfully, your humble servant,

JOHN LOWELL.

Corresponding Secretary of the Massachusetts Agricultural Society

REMARKS ON THE COMMUNICATION OF G. W., ATTRIBUTING GREAT EFFECTS TO THE INFLUENCE OF ASHES AND PLASTER, APPLIED TO INDIAN CORN PLANTED IN POOR LAND.

Mr. Skinner,

It is the misfortune of our art to be involved in much doubt, and when some of these doubts are by many years experience removed to our own satisfaction, we often have not in our power to satisfy others, or the opinions of experienced men a reason in contradiction and go generally no further than those of mere theorists; as there is no mode of demonstrating them that is not liable to error. If we state to you the amount per acre of crop, or prove by shewing it; still there is no proof that its great size is the entire effect of the cause that we may be disposed to ascribe for it. There are many things that operate to promote or injure the growth of plants, and some of them very occult, which cannot be taken into the account at one, or even two experiments. Indeed in one season we will see a crop grow as it were by magic most luxuriantly; the next come to nothing and under the same management, yet we are unable to detect any very important differ-

ence in the weather. My thorough reference to this, and other things, are experiment generally satisfies young farmers; but it requires many to satisfy old ones, and then they receive conviction with caution at last. These reflections occurred upon reading in your Farmer, No. 39 vol. 3, a communication signed G. H. on the cultivation of Indian Corn, wherein he states, that a handful of ashes and plaster of paris, covered in each hill with the Corn, occasioned an increase of 100 per cent. in the crop; and believing it our mutual duty to communicate experiments when the results have differed, I take the liberty of remarking up on that communication, and offering mine on the same subjects.

It will be noted in the first place that Mr. G. W. gave his land a ploughing as deep as he could plough it—This may account for his extraordinary crop at least the first year, without the aid of ashes or plaster.

In the next place that he left no part of the ground undressed with ashes to observe the difference.

I cannot believe that the combination of ashes with plaster brings into operation any additional powers of either, which is not possessed, when used alone. Therefore there is no particular utility derivable from uniting them.

Having found that two bushels, of plaster on my clover, produces as much effect for the present year, as a greater quantity, I have been in the habit for many years of mixing one bushel of damp ashes to each two bushels of plaster, when sowing it, to prevent its flying; and I made repeated experiments to see if the addition of the ashes made any visible difference, but never perceived any. It did no doubt benefit the corps but in so small a degree as not to be perceptible. The ashes are valuable to moisten the plaster, and I stated my practice to Doctor Harris, of your city, some years ago, who had then a Farm in the county, and who was much pleased with the suggestion. It was practised in Pennsylvania 15 years ago, and I was surprised it had not found its way into Baltimore county. Damping the plaster without the ashes makes it cohere, and with ashes you may sow in windy water.

I also made repeated experiments on the grass walks in the garden, where I put on as much as 50 and 100 bushels to the acre of ashes, and could not perceive that the union of plaster with ashes gave additional powers to the one or the other. Two bushels of plaster to the acre produced nearly as much effect the first summer, as when combined with the ashes; but the ashes last for years, while the land when kept closely mowed after plaster soon becomes exhausted, without the application of other manure.

Soap Boiler's ashes are, I take it, the poorest of all, as they leach them so severely, and my experiments on Corn have convinced me that half a shovel full in the Corn hills at five feet apart is the least that should be used, if you wish to put on as much of that manure as the land in my opinion ought to have—this is about five good cart loads to the acre, and it will double the crop, I believe on any land rich or poor that has not already ashes enough on it.

I have applied it under the corn, on the corn exactly on the hill above, and spread circularly round the top of the hill, which is easily done with an expert hand at the shovel—this I have found the best manner decidedly of applying all kinds of manure for the hill. The first rains send it down about the roots of the young corn then circumscribed, and the different workings afterwards with the harrow and hoe, scatter it through the soil.

If experience did not, reason I think ought to teach us, that the manure should be so applied that it will during the growth of the crop be spread all through the ground.

The roots of the corn at five feet distance run from hill to hill, and strike deep into the ground, and of course the more the manure is divided the better can these roots take it up.—The ashes must be in contact with and divided by the earth to act to the greatest advantage; for we know, that corn will not grow in a bank of ashes.

Besides, without this scattering, if put in wheat, the land will exhibit a very awkward and irregular appearance, a high tuft of wheat at every corn hill. My plan completely remedies these objections, while it embraces the advantages of manuring in the hill (which though it is by many considered a peddling mode of manuring) rely upon it, is the mode to apply scanty resources.

Plaster acts on the grasses on my land, and I have repeatedly tried it on corn in various quantities, and modes; but I have not seen effects at any time, sufficient to induce me to think it worth the trouble of applying.

I am persuaded that no quantity of plaster that could be applied would increase the crop 25 per cent; and I think I have made experiments enough with ashes to know, that a handful to each hill would not increase the crop 25 per cent. If therefore I am right, Mr. G. W.'s success must have proceeded from his deep ploughing or some other cause; and not alone from the application of his 16 dollars worth of manure.

ENQUIRER.

December 21st, 1821.

CATTLE SHOW &c.

Worcester Co. Mass. Wednesday, October 3, 1821.

On Thursday last, the WORCESTER COUNTY AGRICULTURAL SOCIETY held their third Anniversary cattle show, ploughing match, and exhibition of manufactures. We congratulate the members of the Society and the farmers of the county of Worcester upon the success which has again crowned their exertions. We speak but the sober truth in saying, that every pledge has been redeemed, every promise fulfilled, every reasonable expectation gratified. With a pride which is warranted by so good a cause and so honorable a result, we now repeat the question—Where is the individual who doubts that the tendency of this institution is as beneficial as its purposes are pure and patriotic?

The ploughmen drew for lots, and precisely at 9 o'clock the teams started together in the match. A subsequent sketch of the committee's report will shew in what manner the work was performed.

At 11 o'clock the Society moved in procession to the South Meeting-house. The public services were introduced by a Prayer from the Rev. Dr. Phayer, of Lancaster, which was not only peculiarly appropriate to the occasion, but one of the most truly eloquent

thanksgivings to the Great Creator, to which we ever listened. An address was pronounced by the hon. JONATHAN RUSSELL, of Mendon, one of the vice-presidents of the Society. We will not attempt a sketch of this excellent performance. It will probably soon be laid before the public; and we doubt not they will confirm the judgment of a numerous and highly respectable audience, who have given to the address what we consider very high praise, by pronouncing it in every respect, worthy of its author. After the services were concluded, the names of the various committees were announced; and the procession being formed in the same order in which it entered the house, made a circuit of the pens to view the animals which they enclosed, and was dismissed in the area between the pens. The committees then proceeded to a discharge of their arduous duties. At half past 2 o'clock, a procession was again formed for dinner, which was provided in a very handsome manner by Messrs. Howe, and White, at their hotel. Hon. David Waldo presided, assisted by Stephen Williams, esp. one of the vice presidents of the Society. After dinner the following toasts were announced:—

Our Mother Earth—It becomes her offspring to reflect, that like other mothers, the nutrient she affords is dependent on the aliment she receives.

"In government as in religion, having much freedom, let us not forget all restraint."

The Nobility of our Country.—The Lords of the Soil, The Plough, the Shuttle and the Carriage. They furnish our three prime comforts—Food, Clothing, Cash.

The Ploughing Match, and all other matches, which will test the ability of each member of our Society to perform his business in a husband-like manner.

The Farmer's Cardinal point—Good Tools, Strong Teams, Neat Farms, & Smart Wives.

"My Jolly Boys now who follow the Plough," Drink—"Long life and success to the FARMER!"

At 5 o'clock the Trustees assembled in the Meeting-house, and the several committees made their reports, of which only a summary sketch can now be given. It is intended to publish them hereafter in detail.

The committee on Neat Stock and Swine consisted of hon. Levi Lincoln, of Worcester, chairman; col. William Eager, of Northborough, Joseph Estabrook, esq. of Royalston, Stephen Hastings, esq. of Sterling, and col. William Foster, of Sturbridge. The report of this committee was highly interesting, and will be published at length in the course of a week or two. The chairman introduced his report by observing, that the time allowed them for the examination of more than 130 animals, was shorter than they could have wished, but they had exercised their best judgment, and if they could not satisfy all, they hoped for a candid interpretation of their motives, and of the rules by which they had endeavored impartially to govern themselves. The committee then proceeded to notice those fine animals which were exhibited of the Teeswater breed recently introduced into the country by Mr. Williams's imported Bull "Denton." They passed a high commendation upon this noble breed, and observed, that so far from degenerating in this country, it seemed to be improved by crossing with our common breed. Among the young creatures of this stock, the committee particularly noticed the following.—A Bull, 1 year and 5 months old, of Messrs. Penman and Hanger of New Braintree; a Bull of Mr. Cleveland, of Lancaster; a Bull Calf of Mr. Henry Bullard, of Holden, 6 months old; a Bull Calf of John W. Hubbard, esq. of Worcester, 10 months old, and another 6 months and 13 days old; a Bull Calf of Capt. Samuel Ward, of Worcester, of the same age to a day with the last mentioned calf of Mr. Hubbard; a Heifer of hon. Nathaniel Paine, of Worcester, 1 year and 14 days old, and already with Calf by Mr. Hubbard's oldest Bull Calf; three Heifer Calves of the chairman of the committee, Mr. Lincoln, 6 months old; two Heifers with their Calves, belonging to John Hare Powell, esq. of Pennsylvania, an enterprising and scientific Agreer turnst, who lately purchased those animals of Mr. Williams, and suffered them to be offered at our show for exhibition merely; and four Yearling Heifers of Mr. Williams. The committee

also mentioned with approbation the fine stock of Mr. Asa Rice, jun. of Shrewsbury, among which was a Heifer of the same breed. The committee recommended the following premiums:—

To Payson Williams, of Fitchburg for the best Bull, not less than one year old, \$10 00

To John Richardson, of Templeton, for the next best Bull, 7 00

To Henry Bullard, of Holden, for the best Bull Calf, 5 00

To Samuel Ward, of Worcester, for the next best, 3 00

To Nathaniel Paine, of Worcester, for the best Milch Cow, 10 00

To Horace Warren, of New-Braintree, for the next best, 7 00

To John W. Hubbard, of Worcester, for the next best, 5 00

To Job Rainger, of New-Braintree, for a very excellent Cow, 3 00

To Nathaniel Paine, of Worcester, for the best Heifer, from 1 to 3 years old, with or without Calf, 5 00

To Lewis Barnard, of Worcester, for the next best, 3 00

To Daniel King, of Rutland, for the best Heifer Calf, from 4 to 12 months old, 4 00

To Lovet Peters, of Westborough, for the next best, 2 00

To Asa Rice, jun. of Shrewsbury, for the best Ox, fatted for slaughter, regard being had to the mode and expense of fattening, (wt. 2128 lbs.) 4 years old, 10 00

To Stephen Howe, of Petersham, for the next best Ox, (wt. 2545 lbs.) 3 years old, 7 00

To Lewis Barnard, of Worcester, for the next best Ox, (wt. 2213 lbs.) 5 years old, 5 00

To Seth Wyman, of Shrewsbury, for the best pair of 4 year old Steers, broken to the yoke, and kept for labour, 10 00

To Jonathan Davis, jun. of Oxford, for the best pair of 3 years old Steers, broken to the yoke, 8 00

To Thomas W. Ward, of Shrewsbury, for the best Steers, from 1 to 3 years old past, broken or unbroken, 7 00

To N. Thelwell Dodge, of Sutton, for the next best, 5 00

To Luther Whiting, of Sutton, for the next best, 3 00

To Jonathan Davis, jun. of Oxford, for the best Boar, not more than 2 years nor less than 6 months old, 5 00

To Jacob Hinds, of West-Boylston, for the next best, 3 00

To David Lovell, of Worcester, for the best breeding Sow, 3 00

To David Lovell, for the best weaned Pigs, not less than 3 in number, of the same litter, 3 00

In consideration of the attention paid to the Society by Mr. Powell, of Philadelphia, and the singular excellency of the stock exhibited by him, particularly of his two years old Heifer, with her two Calves, the Committee recommended that the Trustees present to him a premium plate for that animal.

The Committee noticed many other fine animals, on whose owners it was impossible to bestow any pecuniary reward, from the limited number of premiums. They also noticed the beautiful stock sent for exhibition merely, by Ward Nicholas Boylston, Esq. of Princeton. All these particulars will appear in the Report of the Committee, which will be published at length.

The Committee on *Working Oxen* recommend the following premiums:—

To Darius Putnam, of Sutton, the 1st premium, \$15 00

To Sias Dudley, of Sutton the 2d do. 10 00

To Salmon Hathaway, of Grafton, 3d do. 8 00

To Jonas L. Sibley, of Sutton, the 4th do. 6 00

To Lewis Lilly, of Oxford, the 5th do. 5 00

The Committee on *Merino, Mixed, and Native Sheep* recommended the following premiums:—

To William Lincoln, of Worcester, for the best Merino Ram, \$7 00

To James Smith, of Rutland, for the next best, 5 00

To William Lincoln, of Worcester, for the best lot of Merino Ewes, not less than 4 in number, 10 00

To James Smith, 2d, of Rutland, for the next best, 5 00

To Benjamin Holden, of Rutland, for the best Native Ram, 3 00

To John Peirce, of Milbury, for the next best, 3 00

To Stephen Howe, of Petersham, for the best Native Ewes, 2 00

To Elisha Matthews, of New Braintree, for the best lot of Mixed Ewes, 5 00

The Committee observed, that a premium would have been given to the excellent Native Ram of John Stratton, of Philipston, had it been regularly entered. It appears since, that a mere accident, and not any negligence of the owner, prevented a reasonable entry of this animal; and we have no doubt the Trustees, taking this into consideration, will adjudge the owner a premium.

The Committee on the Ploughing Match reported, that the field which had been surveyed into lots for the purpose, had been laid down to grass for more than twenty-five years. The soil was loam mixed with gravel. The work was performed in the respective lots as follows:—

Lot No. 1. Jonas L. Sibley, of Sutton, one yoke of Oxen; his ploughman, Samuel Sibley; driver, Jeremiah Richardson; plough made by Abner Chase, of Sutton; work done in 19 min.

No. 2. Lewis Lilly, of Oxford, one yoke of Oxen; himself ploughman; no driver; plough made by A. Chase, 2 3 min.

No. 3. Levi Lincoln, of Worcester, two yokes of Oxen; ploughman, Philemon Wright; driver, Artemas Ward; Wood's patent plough, 20 min.

No. 4. Salmon Hathaway, of Grafton; one yoke of Oxen; himself ploughman; driver, Asa Cummings; plough made by John Dall, of Sutton, with a wheel 29 min.

No. 5. Darius Putnam, of Sutton; one yoke of Oxen; ploughman, David Putnam; himself driver; plough with a wheel made by Nathaniel Sibley, of Sutton, 17 min.

No. 6. Nathaniel Gates, of Worcester; one yoke of Oxen; himself ploughman; driver, Levi Gates; Wood's patent plough, 30 min.

No. 7. Luke Aldrich, jun. of Mendon; two yokes of Oxen; himself ploughman; driver, William Trask, a boy; plough with a cutter, made by Jesse Warren, of D. dham, 2 3 min.

No. 8. Israel Whitney, of Worcester; one yoke of Oxen; himself ploughman; no driver, 9 min.

No. 9. Sias Dudley, of Sutton; one yoke of Oxen; himself ploughman; no driver; common plough, 23 min.

The test of merit was the best work with the least expense of labour. The Committee remarked, that it was very difficult to decide among competitors when all did so well; but in the best exercise of their judgment they had concluded to recommend the following premiums:—

To Sias Dudley the first premium of Ten Dollars, and also a premium to himself, as ploughman and driver, of Eight Dollars

To Jonas L. Sibley, the second premium, of Eight Dollars for the plough; to his ploughman, Four Dollars; and to his Driver, Two Dollars.

To Lewis Lilly, the third premium of Six Dollars for the plough; and Four Dollars to himself as ploughman and driver.

To Darius Putnam, the fourth premium, of Four Dollars for the plough; and to his ploughman Two Dollars.

To Luke Aldrich, jun. a premium of Four Dollars, for his excellent work, which was as good as any on the field.

The Reports of the respective Committees were accepted by the Trustees, and the premiums which had been recommended were awarded accordingly.

The Committee on *Agricultural Improvements and Experiments, and Original Inventions* consists of Hon. Oliver Fisk, of Worcester, Chairman; Hon. Stephen P. Gardner, of Bolton, Thomas W. Ward, of Shrewsbury, Hon. Benjamin Adams, of Uxbridge, and Lovet Peters, Esq. of Westborough. This Committee will report in December next, and agricultural essays, claims for premiums, &c. may be transmitted to the Corresponding Secretary, postage paid, on or before the first of December.

The Committee of Arrangements, in behalf of the Society, returned thanks to the Hon. JONATHAN RUSSELL for his Address, and requested a copy to be placed at the disposal of the Trustees. Mr. Russell has very politely furnished a copy; and it will probably soon be laid before the public, accompanied with a summary statement of the proceedings of the day, and a corrected list of the members.

The Society was complimented by a delegation from the Agricultural Society of the County of Windham, State of Connecticut. This delegation consisted of Messrs. Perkins and Hall.

The thanks of the Society are due to many gentlemen for their active exertions and the powerful aid they have afforded on this occasion; they are particularly indebted to the gentlemen who consented to act as Marshals, who performed their duty with energy and discretion, viz., Gen. Thomas Chamberlain, Col. Samuel Moxley, jun. Col. Cyrus Leland, Col. John W. Lincoln, and Major Seth Caldwell.

All the proceedings of the day were conducted and terminated in the most satisfactory manner. The Farmers of the County of Worcester have reason to be proud of such a display of their resources and enterprise. It is in their own power to maintain and exalt their present high character. It will be their own fault if it is ever forfeited.

RECIPES.

Original mode of curing Hams.

Put each ham with two tea-spoonfuls of salt petre, and let them remain for eight or ten hours, then mix brown sugar with fine salt, till the salt is brown, and then rub each ham well with this mixture, and pack them down in a tight cask, sprinkling salt very lightly over every layer, let them remain for twelve or fourteen days, then unpack them and put those that were on the top, at bottom, and any pickle which they made, pour over them, and in two weeks more they will be fit to smoke.

Common Salt and sifted wood ashes, in equal parts, made into a paste with water, make as good cement for iron flues, &c. better than most other compositions, and may be applied when the flue is not cold. Iron filings and vinegar will do as well.

OVERSEER.

Wants a situation as overseer, a married man who was brought up to farming in one of the first Agricultural counties in England, and has had some experience in this state. His wife would undertake the management of a small dairy. For information as to character and capacity a reference will be given to his late employer, a gentleman of the first respectability. Apply at Matthew Smith's, No. 228 Market street.

Printed every Friday at \$4 per annum, for JOHN S. SKINNER, Editor, by Joseph Robinson, at the N. E. corner of Market and Belvidere-streets, Baitmore, where every description of Book and Job Printing is executed—Orders from a distance for Binding, with proper directions, promptly attended to.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua si bona norint
"Agricolae." VIRG.

VOL. III.

BALTIMORE, FRIDAY, FEBRUARY 15, 1822.

NUM. 47.

AGRICULTURE.

Extract from Darwin's Phytologia.

Economy of Vegetation.

THE GROWTH OF SEEDS, BUDS, AND BULBS.
(Concluded.)

III. 1. **BULBS.** Leaf-buds precede flower-buds in the tulip as leaf-buds in apple-trees, as joints in the stalk of wheat. Solitary generation of insects. 2. Bulbs of onions. Orchis. Tulip. Hacinth. Ranunculus. Iris. 3. Roots of potatoes. Wires of strawberries.—Seeds of orchis. Flowers of potatoes. 4. Stem buds on magical onions are similar to root-buds. 5. Root-grafting. Root-inoculation. Root-propagation. Suckers of trees. Root-buds of herbaceous plants. Internal parts of which decay. 6. Tuberous roots of turnip and carrot are reservoirs of nutriment for the succeeding flower-stem. No flower-bud is ever produced from a seed without previous leaf-buds. Why seedling apple-trees are ten or twelve years before they bear fruit. 7. Use of the horse-hoe to accumulate earth round the wheat-plants. Wheat dropped on the soil shoots up but one stem. Covered with the soil it shoots up many. And transplanted deeper in the soil many more. Potatoes, vines, and figs, produce lateral roots from their joints. So does the bark if wounded circularly. Use of eating down forward wheat with sheep.

III. 1. **THE BULBOUS ROOTS** of some perennial herbaceous plants, and the root-scions of other perennial herbaceous plants, are similar in this respect, which distinguishes them from buds: that they are generated on the broad caudex of the plant within the ground, or in contact with it, and immediately shoot down their new roots into the earth. Whereas buds are formed above the soil on the long caulex, which constitute the filaments of the bark of trees, and shoot down new roots into the earth from the lower end of these elongated caulexes.

Bulbs have not improperly been called subterraneous buds; and like them they may be divided into leaf-bulbs and flower-bulbs.—When a tulip-seed is sown, it produces a small plant the first summer, which in the autumn dies, and leaves in its place one or more bulbs. These are leaf-bulbs, which in the ensuing spring rise into stronger plants than those of the first year, but no flowers are yet generated; in the autumn these perish like the former, and leave in their places other leaf-bulbs stronger, or more perfect than their preceding parents. This succession of leaf-bulbs continues for four or five years, till at length the bulb acquires a greater perfection or maturity, necessary for

seminal generation, and produces in its place a large flower-bud in the centre with several small leaf-buds around it.

This successive formation of leaf-bulbs in bulbous rooted plants previous to the formation of a flower-bud is curiously analogous to the production of leaf-bulbs, on many trees for several years before the production of flower-buds; thus the apple-trees, *nivrus malus*, which are raised from seeds, generate only leaf-buds for ten or twelve years, and afterwards annually generate both flower-buds and leaf-buds. From whence it would seem, that the adherent lateral or paternal progeny is the most simple and easiest, and consequently the first mode of reproduction; and that the amatorial or seminal progeny is on this account not generated till the maturer age or more perfect state of the parent-bud.

A still more curious analogy to this circumstance of a succession of leaf-buds and leaf-bulbs preceding the formation of flower-buds and flower-bulbs exists in the growth of wheat, triticum, and other grasses; but with this difference, that a succession of leaf-buds, as of two or three, or four, are produced in the same year previous to the flower-bud. At the first joint of the stem of wheat, on or within the surface of the earth, a leaf is produced; from which rises the principal or central-bud, and around it many new buds, which strike their roots into the soil. After this central bud, and those around it, have arisen six or eight inches, a new leaf and a new leaf-bud rises on each of them, producing a second joint of the stem; and lastly, a flower-bud is generated at the summit, which are all evidently distinct vegetable beings, as there is a division across the stem at each joint, which shews there is no connexion of the pith, or brain, or spinal marrow, between the lower and upper joints, as mentioned in Sect. I. 8.

That a new bud thus constitutes each joint of the stem of wheat, and other grasses, is further evinced; first, by the existence of a leaf at each joint without a lateral bud in its axilla, as occurs in other vegetables. Secondly, because for the nourishment of this new leaf-bud a reservoir of sweet-juice is prepared in the new joint; as in the bulbs of many plants. And thirdly, because the lower leaf dies, and the sweet juice is absorbed, as the upper leaf becomes vegete. Hence we acquire the knowledge of the use of this reservoir of sugar in the vegetable economy, which supplies so much agreeable and salutary nourishment to mankind from the cultivation of the sugar-cane. See No. 1. 6. and No. 3. 7. of this Section.

The analogy between the buds of plants and the adherent lateral progeny of some insects as of the polypus, and tenta, or tape-worm, and volvox, was mentioned in Sect. VII. 1. 4. But the circumstance of the successive production of leaf-buds and leaf-bulbs previous to the pro-

duction of flower-buds or flower-bulbs is wonderfully analogous to the generation of the aphid, which rising from an egg in the spring after casting its skin once or twice produces a living progeny without amatorial copulation; and this off-spring produces others by this solitary propagation till the tenth generation; then a sexual progeny of males and females is produced, and eggs are laid in the autumn from their amatorial intercourse, Encycloped. Britan. Amenitat. Academ. Vol. VII. by A. T. Bladh. See Sect. XIV. 3. 2. Thus this insect from the egg requires to be reproduced many times by solitary propagation before it becomes sufficiently perfect to generate a sexual off-spring like the buds and bulbs from seeds above mentioned. And it is probable, that the polypus of our stagnant waters, which produces a lateral off-spring in the summer, I suppose by solitary propagation, may procreate males and females, and generate eggs in consequence in the autumn for their reproduction the ensuing spring.

To this may be added the great change, which many insects and even larger animals undergo either in strength or form, before they acquire the power of seminal reproduction. As the silk-worm changes into a butterfly apparently for the purpose of generation only, as it then performs this office and dies. Other caterpillars change their form likewise into butterflies, and at the same time change their kind of food, which was the green foliage of vegetables before this transformation; but now consists solely of honey. And lastly, the goat and musqueto change at the same time both their forms, their food, and their element; and thus acquire higher animation apparently for the purpose of sexual reproduction.

2. The manner of the production of herbaceous plants from their various perennial roots wants further investigation, their analogy is not yet nearly ascertained. I this autumn dissected two large roots of the onion or leek kind, which were in full flower; the stem of each of them was embraced by the cylindrical pedicles of six or seven concentric leaves; but the stem itself arose from the centre between three large new bulbs in one of them, and between two in the other. All of which grew from the same caudex, but the central flower-stem was wrapped at its bottom in one membrane only, which separated it from the new bulbs in its vicinity.

A large root of a young onion, which grew from seed sown in the spring, was at the same time dissected by stripping off the leaves, and their fleshy bases, one after another, till two buds were visible in the centre of the fleshy bases of the concentric leaves, which formed the bulb. These two bulbs were evidently formed and nourished on the caudex by the stem, and its six or seven concentric cylindrical leaves; and with, I suppose, separate in the spring, as they rise up, and produce each of

them a flower with two or three new bulbs at the base of it, as described in the above paragraph.

Or from the different size and apparent greater maturity of the central bulb, and the secondary bulb, being between the innermost and the second circular fleshy membrane, I suppose: in these roots of onion, like the tulip-roots before spoken of, that the central bulb, alone may produce a flower in the next summer; and that the lateral bulb or bulbs will produce only stronger and more mature leaf-bulbs, which will in the succeeding summer bear a flower or sexual progeny.

The caudex, or central part of the bulb, from which the root-fibres descend, and the leaves ascend, lies above the knot in the orchis morio; and the parent-root shrivels up and dies, as the young one increases. The flower of this plant does not ripen its seeds in this climate: it might be otherwise worth cultivation for the use of the new roots; which when scalded and peeled, are said to be the salep of the shops. It is asserted by one of the Linnean schools in the *Acadēm*, Acadēm that if the new root be pinched off, the seeds on the old one will ripen, and become prolific.

In the tulip the caudex lies below the bulb, from whence proceed the fibrous roots and the new bulbs; the root after it has flowered dies like the orchis root; for the stem of the last year's tulip lies on the outside, and not in the centre of new bulb. In the tulip-root, dissected in the early spring, just before it begins to shoot, a perfect flower is seen in its centre; and between the first and second coat the large next year's bulb is, I believe, produced; between the second and third coat, and between this and the fourth coat, and perhaps further, other less and less bulbs are visible, all adjoining to the caudex at the bottom of the mother bulb; and which I am told, require as many years, before they will flower, as the number of coats with which they are covered; and that the same different states of maturity probably obtain in the buds round the shoots of many fruit-trees, the central one of which will produce flowers the next year as on the spurs of apple-trees; while those beneath it require more or fewer years, before they become sufficiently mature to produce organs of sexual generation; an important secret in the management of fruit-trees.

The hyacinth-root differs from the tulip-root; for, as I am informed, the stem of the last year's flower is always found in the centre of the root, as in the onions above described; and that the new off-sets arise from the caudex below this bulb, and not between any of the concentric coats of it, except the two external ones. On this account the central part is liable by its decay to destroy the flower-bud, if not taken out of the earth, when the leaves die; and hence some florists believe, that these roots perish naturally in five or seven years, after they have flowered, but that the tulip-root never dies from age.

In a few roots of hyacinths, which I this day examined, September 1, the stem of one, which had apparently flowered in the summer, was perfectly decayed in the centre of many new bulbs. In another bulb of less size and compass, which

I supposed had not borne a flower, I found a central flower-bud inclosed in many concentric fleshy bases of former leaves, like an onion in the autumn, which had been sown in the preceding spring. And concluded from hence, that the hyacinth-root dies annually or biennially like the onion, leaving behind it a succession of leaf-bulbs or of flower bulbs. The caudex and claw-like roots of the ranunculus cultivated by florists dies I believe annually, after having put forth a circle of new claws from the upper part of it round the bottom of the perishing flower-stem. Hence the claws of the old-root, which became shrivelled, as the flower advanced, in the autumn disappear; and the decayed part of the old caudex is seen beneath the new claw-like roots, which I suppose has given occasion to some inaccurate observers to believe, that the old stem in this and some other perennial herbaceous plants was drawn downwards by the new root-fibres; while the bulbs of the iris have been supposed to have been pushed upwards, like the lamb-like barometz, by the resistance of the soil to the elongation of the root fibres; which last seems to be a much more probable idea than the former.

From these observations it appears, that the concentric leaves, which incircle the stems of bulb-rooted plants, are the lungs to the caudex; as one or more leaves are to the bud of a tree; and that the caudex with these leaves, and the root-fibres, constitute a vegetable being; which produces a viviparous progeny of new leaf-bulbs, or a seminiferous progeny in flower-bulbs, with a magazine of nutriment in the fleshy base of each leaf; and that the tulip produces only leaf-bulbs for four or five years from the seed, and then but one flower-bulb with many leaf-bulbs annually. But that the onion kind, allium, generates two or three flower-bulbs in the first summer from the seed; which produce flowers and other leaf-bulbs in the second summer from the seed. And lastly, that it is probable, that all bulbous roots, like the buds of deciduous trees, and perhaps of evergreen ones also, are properly speaking biennial plants, as they rise in the summer and perish in the next.

3. In tulip-roots, which have been planted too deep in the earth, and in onion-roots, a vegetable cord, or process, is sometimes seen about an inch long to arise from the caudex beneath the bases of the cylindrical leaves, and to form a new bulb. Similar to this appears the natural growth of the roots of potatoes; a spermatic cord arises from the old root, after the leaves are expanded in the air, to oxygenate the vegetable blood, and a new tuberous or bulbous root is thus generated.

This mode of producing distant roots is exactly resembled above ground by the wires of strawberries; which may be called spermatic cords, which deposit a new vegetable being on the earth, and support it like a bud on a tree, till it can strike roots into the soil, and elevate leaves into the air. The final cause of the length of these subterraneous and aerial spermatic cords is evidently the design of placing their roots at a convenient distance from their parent plants; that they may not incommode each other, but may both of them more readily acquire nutritious juices from the earth, and

the ventilation and sunshine of the atmosphere.

These embryon vegetables in the various bulbous and tuberous roots are in very different states of maturity, as in the buds of different rees; thus in the potato the corculum or pluvula of the new plant only is visible, surrounded with a farinaceous nutriment, as in many seeds; whereas in the tulip and hyacinth the lower of the succeeding year is discernible, as in the bud of the horse-chestnut.

As the ripening of the seed of some bulbous-rooted plants is forwarded by destroying the new bulbs, as in orchids; and the flowering bulbs of other plants are made stronger by raising them out of the earth, and taking away the leaf-bulbs, which surrounded them on the same caudex; as in the customary management of tulip-roots, and hyacinth-roots by the florists; I was led to suspect, that pinching off the flowers of potatoes two or three times might increase the size or quantity of the roots; as the nourishment derived from the vegetable blood to the flowers and seeds might thus be directed to enlarge the roots, and thus lay up more nutriment for the future plants. This idea I mentioned to an ingenious lady, who acquainted me a few months afterwards, that on a few roots she had made this experiment with apparent advantage.

4. The bulbous and tuberous roots of plants are a lateral or paternal progeny like the buds of trees, and therefore exactly resemble the parent plant, as mentioned in Sect. III. 2. 1. and on this account may be liable to be effected by hereditary diseases, and thus to become unhealthy; whence the canker is supposed to arise in those apple-trees, which have for a century or two been propagated by grafting; and the curled leaf in potatoes, which have been too long propagated by their bulbs; and the barrenness of houthois strawberries, which have too long been propagated by wires; all which diseases are believed not to happen in these plants, if they have recently been raised from seed, but want further observations to authenticate the facts.

But there exists a set of bulbs, which seem to be formed by amatorial or seminal generation, and not by the lateral or paternal generation, and would therefore seem to be a viviparous sexual progeny. These are produced on the flower-stem in the place of seeds; and in process of time fall off, and take root in the earth, as is agreeably seen in the polygonum viviparum, viviparous bistort, and the magical onion, allium magicum, and the leek, allium sativum. A curious question here occurs, whether the plants from these bulbs are liable exactly to resemble their parents? and whether they would be liable to hereditary diseases from a long cultivation of them in succession, as is supposed to happen to those mentioned above?

Though a perfect flower precedes the product of some summit-bulbs, as I believe in the lower part of the spike of the polygonum viviparum; yet I suspect, that the summit-bulbs of allium magicum, are exactly similar to the bulbs, which are produced at their roots; because on cutting one of them horizontally into two hemispheres this morning, September 10, I observed three young bulbs inclosed in the concentric fleshy membranes of the summit-bulb

in the following manner; five thick fleshy concentric coats of the general summit-bud being taken away, there appeared one single naked small bud; and the sixth coat being removed, two other buds became visible, which were included in it. Whence it seems, that these stem-buds are as forward as those of the root, and probably are in every respect similar; and that the bracts or floral-leaves, which in seed-bearing plants secrete or prepare a nourishment for the seed, and pericarp of the flower, acquire in these bulbiferous onions and leeks a new office and prepare a magazine of nourishment in the concentric membranes, which surround their summit-buds; and these may be esteemed therefore a sexual viviparous progeny of vegetables, as buds are a lateral viviparous progeny.

5. The roots of trees so resemble their branches, that subterraneous buds are frequently produced upon them, which resemble the parent-tree. The bark of the root likewise so resembles the bark of the branches, that it is not uncommon to ingraft with success on roots taken out of the earth and replanted; as the robinia on the root of the acacia. & any other apples on the roots or the suckers of bur-apples or of codlings; which may be done earlier in the vernal months, as being less liable to injury from frosty nights; and it is probable, that budding or inoculating may be performed in the same manner on the roots at midsummer, as on the branches.

The roots of those plants, which are otherwise not easily propagated, will shoot up buds, if a part of them next to the plant be half cut through, or raised out of the ground, and exposed to the air; as in pyramidal campanula and geranium lobatum; and after a time the root may be separated from the stock, and many new plants may be this way produced.

These root-buds, or suckers, are generally produced near the trunk of the tree, before the root descends much beneath the soil; but in some trees, as the elm, ulmus, and acer, maple, whose roots spread far horizontally, and near the surface of the earth, they are generated at a great distance from the parent tree; because the new scion can thus soon acquire the influence of the atmosphere on its expanding foliage. These root-scions from apple-trees are frequently used in vegetable nurseries for the purpose of ingrafting upon, and are termed paradise stocks by some gardeners; but are not liable to the canker like the grafts from those old apple-trees, which have been in fashion above a century; as these root-scions resemble the trunk of the tree, which produces them, not the ingrafted head of it; and thus may not have been many years from the state of a seedling vegetable.

Similar to these root-scions of trees it is probable, that the root-buds of perennial herbaceous plants are produced; which have divaricated, or fibrous-roots, and whose summits perish in the winter. For many years the root thickens by an annual new bark being induced over the old one, exactly as in the trunks and roots of trees.

As these roots increase in size, the central part I suppose, changes like the internal wood of a tree, and ceases to possess vegetable life;

and in process of time is liable to decay. On this account these perennial roots are not so valuable for the purposes of medicine or diet, or mechanic arts, either before or after they have passed a determinate age; as the bark of the root changes annually into a kind of albumen, and then into a kind of wood, and lastly, is liable to decay, as occurs in the roots of rheum palmatum, when they are seven or more years old. See Sect. XVII. 2. This decay of the central part of the root, which happens annually to some plants, and is surrounded with new buds and their root-fibres, exhibits the appearance of the lower end of the root having been chopped, or bitten off, to some fanciful botanists; as in plantago major, and valerian; and has hence given to scabiosa succisa the name of devils-bit, morsus diaboli.

6. The buds already mentioned, as those of tulips, hyacinths, and onions, are properly the winter-cradles, or hybernacula, of the young plants, whether in their leaf bud or flower-bud state; and are furnished with a magazine or reservoir of nourishment for the growing embryos, as appears in the squill, scilla maritima, which vegetates from this source of nutriment in the druggists shops. But there are other roots termed tuberous roots, as of turnip and carrot, which consist solely of a large reservoir of nutriment for the growth and nourishment of the rising stem and future seeds; whether these are produced in the same year, as occurs, when the seeds are sown early in the spring; or when their vegetation is stopped by the cold of winter, and proceeds again in the ensuing spring; as generally occurs to our turnips, the roots of which I am well informed may be much enlarged by transplantation. See Sect. XII. 6.

In these plants the leaves, by exposing the vegetable blood to the influence of the air, prepare it for the secretion of nutriment in their knobby roots; in the same manner as nourishment is produced and reserved in the concentric fleshy bases of the leaves of onions; and in these plants, as in the onion kind, the leaves, which surround the base of the new stems, wither and die; as the new buds, or bulbs put forth leaves of their own for the purpose of oxygenating their blood. Thus it appears, that the stem and flower of the onion, or carrot, or turnip, is a new plant, not arising immediately from the seed which was sown, but from the leaf root or leaf knob, if it may be so called, which preceded the production of the flower-bud, or flower stem, exactly as the flower or ear of wheat, which was shown in Sect. IX. 3, to have three or four successive leaf-buds preceding the flower-bud.

From these observations may we conclude, that no flower-bud or flower-bud is ever produced from a seed, without the previous interposition of one or more leaf-buds or leaf buds; and that those flower-buds or flower-buds are either produced in one generation after sowing the seed, as the flower-buds of onions, which are generated and nourished at the bases of the concentric cylindrical leaves of the preceding leaf plant, which arose from the seed; or as the stems and flower-buds of the carrot and turnip, which are generated and nourished at the base

of the concentric leaves of the preceding leaf-plant. Or secondly, that they are produced in one summer, though after several generations from the seed; as the three or four joints of the stem of wheat, and other grasses, which are generated and nourished in succession in the bosoms of four or five cylindrical leaves, one at each joint: which also probably obtains in all other vegetables, which are supported by hollow stems divided by joints, and furnished with leaves at these stem-joints with or without branches, as tragopogon or pteris. In these plants, where there are no branches, there is simply a new central bud; and two or more lateral new buds beside the central one, where there are branches.

Or lastly, where the leaf buds or leaf-buds, which are produced from seeds, succeed each other for some years, before they arrive at sufficient maturity to produce sexual organs, or generate a flower, as in the bulbs of tulips, and hyacinths, and the buds of trees. Whence we at length acquire a distinct idea, why seedling apple-trees are ten or twelve years before they bear fruit; though the buds or shoots taken from a tree, which already has borne fruit, and ingrafted even on a young seedling tree, shall produce flowers in the first or second year; as these buds have already acquired that state of perfection or maturity, which is necessary to the production of sexual or seminal generation; and as it therefore possesses the age of puberty, or the maturity of the tree; we may suspect, that it will sooner acquire the hereditary diseases consequent to too long unmixt successive generations, a piece of very important knowledge to the planters of orchards; which they owe to the observation of Mr. Knight, as mentioned in Sect. VII. 1. 3.

Hence in many plants produced from seeds, perhaps in all, one or more leaf-buds precede the flower-bud; and I suppose generally, if not always, a magazine of aliment is formed at the bases of the leaves, or in the roots, for the nutriment of the succeeding leaf-bud or flower-bud of which it is the parent.

Thus in the carrot and turnip the first leaves constitute the lungs of the new vegetable being, which generates the succeeding flower stem, and secretes or deposits for it a magazine of aliment, which forms the tuberous root; and then this first plant from the seed and its leaves or lungs perish; and the root gradually shrivels up, as it is absorbed by the new flower stem. In many plants these first or root leaves differ in form from those of the succeeding stem, as in palmated rhubarb, and in campanula rotundifolia, which is so called from the round form of the leaves of this first leaf-bud, or root-plant, which precedes the flower-stem.

7. One great advantage of Mr. Tull's horse-hoeing husbandry, in which the earth near the rows of wheat is alternately turned from and to them during the vernal months, has been supposed to arise from some fibres of the roots being thus cut off, and new stems shooting up at the ends of those which remain; but the real cause of the production of the new stems is from the accumulation of earth above the first joint of the young wheat-plant: from which the new buds spring out, generated and nourished

by the caudex of the leaf, which surrounds that joint, and which afterwards withers; this important circumstance is shown by the annexed delineation of a transplanted wheat-plant.*

The plant of wheat was taken from a cornfield in the spring, and then consisted first of the root immediately proceeding from the seed *a*, which has been called the seminal root; and secondly, of the root, which was then near the surface of the ground *b*, which has been called the coronal root, was furnished with a stem and leaf, *c, d*, and with a secondary stem, or root-scion, *e, f*. This wheat-plant consisting of only two stems was replanted in my garden, and purposely buried so deep as to cover the two or three first joints of both the stems beneath the soil; that is as high as the letter *f*, where the secondary stem was purposely cut off.

On taking up this plant with some others on September 24, it had assumed the form here delineated. The primary stem, *c, g*, had shot out no new roots from the joint *g*, which I suppose to have happened from its being too far advanced when replanted; as many other stems of other wheat-plants, which had not been obstructed, had nevertheless put forth one or more lateral stems or root-scions at the second or third joints, which on transplantation had been covered with the soil.

But the obstructed stem *e, f*, had generated a new root-scion at *h*, like the first shoot from the seed at *a*; which had produced other new stems as it approached nearer the surface of the earth at *i*; and as these advanced into the air, and formed their leaves, other new root-scions were generated at *k* and *l*. Whence it appears, that by decapitation, and a deeper immersion in the ground, a secondary stem in this plant became multiplied into five; all which produced perfect ears of corn: and in other roots, which I had planted in a similar manner, the increase was much greater: and especially where one or more of the primary or secondary stems had been decapitated.

If a grain of wheat be dropped on the surface of the earth, and suffered to shoot down its roots, and to raise its stem, which is the process of nature, I suppose but one stem would be produced; as the first knot or joint of it would not be covered with earth, and could not therefore shoot down new roots; which are necessary in these plants to the production of new stems which are not branches but suckers or root-scions.

But if the grain be buried an inch deep in the earth, a shoot rises from the roots, which issue from the seed, which is an elongation of the caudex, and puts forth a leaf in contact with the surface of the earth; this leaf and stem constitute the primary plant and generate new buds, which put forth new roots descending into the earth; and thus three or four or more suckers, or new plants, arise round the original one, which was contained in the seed: hence the appearance of two roots, which some authors have named the seminal and coronal roots. The ingenious Mr. Tull seems himself to have been aware of this circumstance, as he

says in his Husbandry, "Late planted wheat sends out no root above the grain before spring, but is nourished all winter by a single thread proceeding from the grain up to the surface."

This explains the prodigious multiplication of the stems of wheat, which may be produced by transplanting it three or four times in the summer, autumn, and ensuing spring; for if it be so managed, that a second joint of each young stem be buried in the soil, or brought even into contact with it, so that new roots may strike down into the earth; the caudex of the leaf, which surrounds this joint will generate many new buds, which will thus become suckers, or root-scions, and rival their parent; and may be again transplanted or earthed up three or four times with wonderful increase.—Mr. Charles Miller of Cambridge sowed some wheat on the second of June, 1766, and on the eighth of August one plant was taken up and separated into eighteen parts and replanted; these plants were again taken up and divided between the middle of September and the middle of October, and again planted separately to stand the winter, and this second division produced sixty-seven plants. They were again taken up, and divided between the middle of March and the middle of April, and produced five hundred plants. The number of ears thus produced from one grain of wheat was 21109, which measured three pecks and three quarters of corn, weighed forty-seven pounds seven ounces, and were estimated at 576840 grains! Philos. Trans. Vol. LVIII. p. 203. See Sect. XII. 6.

Nor is this unsupported by the analogy of other vegetables, in which new roots are liable to shoot in great abundance from their joints either alone or along with new buds, if a proper degree of moisture is presented to them. Thus if the stem of a potato be laid down upon the earth, and covered with soil over the first joint, a new series of roots will be protruded from that joint; and afterwards another series of roots from the second joint, if managed in the same manner; and it is asserted that this will occur even if the potato stems are taken out of the ground, when they are six or eight inches high, and deprived of all their young roots, and transplanted, so as to cover one or two joints, and that a great crop has been thus produced.

The rapid growth of some grasses, and of some species of the convolvulus, and of colts-foot, is well known, and very troublesome in many situations. Of these very minute parts of the jointed root, when cut from the parent, elongate themselves, and shoot up new plants. From the very numerous divisions of the wheat-root described by Mr. Miller, it may be suspected that something similar to this must have happened, which further observations must determine.

Vines also are thus liable to shoot out roots at their joints, and fig-trees when covered only with a shred of cloth in nailing them to a wall, if it be accidentally kept moist. And there is an apple-tree, which is called a burr-apple, because it puts out roundish protuberances or excrescences of the bark like a burr, which if the branch be bent down, or even torn off, and set in the moist earth, will immediately strike out

roots, as I am told, and become a tree similar to the parent.

In the same manner I have been informed that if a circular ring of the bark be cut off from many trees and shrubs, which are otherwise difficult to propagate, and earth be put round the branch thus decorticated a few inches above and below the wooded part, by means of a garden-pot previously broken longitudinally, and bound together round the branch, that roots will shoot from the upper lip of the wound; and in a little time the branch may be safely cut off below the garden-pot, and planted with success.

When a few inches of the end of the branch are cut off in the spring, as is common in pruning wall-trees, new buds are produced near the extremity, which remains; or those, which did exist, grow with greater vigour; as they obtain some of that nourishment which should have supported the buds, which were cut off. The same occurs in respect to the suckers or root-scions of those trees, which produce them, as of elm-trees, and of some apple-trees; if many of the branches be cut away, the suckers or root-scions become more numerous, or more vigorous.



FROM THE (SCOTCH) FARMERS' MAGAZINE FOR NOV. LAST.

On the Burning of Clay for Manure,

By W. Aiton, Esq. Sheriff-substitute, Hamilton.

SIR—It must be pleasant to every lover of his country to contemplate the progress of Agricultural improvement during the last forty, but especially within the last twenty years. The establishment of the Board of Agriculture, with the publication of their communications, the county surveys and other works, have had powerful effects in collecting and diffusing valuable information. Those who have written on different branches of husbandry being eager to render their works creditable to themselves, and useful to the public, have sought materials from every possible quarter. Others by reading, and reflecting on what they did read, have not only added to their own stock of knowledge, but, in many instances, have improved on the ideas of the author whose works they perused, and reduced his and their own improvements to practice. And even some who could not compose, and did not read much, have made useful discoveries, and instructed others verbally and practically in various branches of husbandry. The state of Agriculture during the last six years has no doubt greatly damped the ardour of the cultivator; but, even during that unpropitious period, many useful discoveries have been made, and much Agricultural knowledge has been diffused. Almost every new publication contains something interesting; and every number you publish either lays open some new discovery, or develops some improvement in practice. And as every one of these leads to further discoveries, and to higher improvements, we may still look forward with confidence to much greater perfection in every branch of husbandry.

It may well be expected, however, that, in a science so extensive, so very far from having attained perfection, and where so many thousands are as it were searching for improvements, and eager to give their discoveries to the public, that some, with even the best intentions, may be themselves deceived, and without intending it, may for a time deceive others. Hence we have sometimes found, that what have appeared to be important discoveries, and I have been warmly recommended as interesting improvements have not been found to be of much importance. Of

* See Am. Farmer, No. 45, Vol. 3.

several instances that might be named, the *Florin Grass* and *Burned Clay* for manure may serve as specimens. Both of these were improvements to a certain extent, and meriting some attention; but both have been recommended far beyond their worth. Dr. Richardson had the merit of bringing into view a species of grass of considerable value, which had not been attended to by any other person; and, in his desire to serve the public, he very much overrated the value of that grass. The *Florin* is certainly the richest in quality of all our grasses; abounding with saccharine matter, and well adapted for green-food in winter, when no other grass can be preserved in that state. But to talk of rearing it under trees, on mountains, and in other situations pointed out, or to the extent mentioned by the Reverend Doctor, or those who became believers of all his statements, betrays a considerable degree of rashness and credulity.

In the same way, the burning of clay as a manure has been recommended far beyond its real merits. It must be obvious to every person that has paid attention to the subject, that when clay, or other earth, is burnt into ashes like brick-dust, it will not (unless acids are applied to it) return again to its former state of clay, but will remain in the granulated state of ashes or friable mould, to which it was reduced by the operation of burning, or torrefaction, as it is sometimes termed by fashionable farmers. An admixture of that kind with a strong adhesive clay, must evidently operate as a powerful manure, by changing the mechanical arrangement of the latter, and rendering it more friable; giving greater facility to the percolation of redundant moisture, and to the spreading of the roots of vegetables in quest of food. The application of a much washed sand, or any similar substance, would have exactly the same effect in opening, and keeping open, the pores of an adhesive clay soil, and converting it into the quality of loam.

Besides this, which would have a permanent improvement upon the staple or texture of every clay soil, burnt clay or torrefied earth may sometimes acquire, in that operation, a small quantity of soot or carbonic matter, that may, in favourable circumstances, operate for one season as a manure, or as a stimulus to a small extent, to the growth of vegetables. This at least may be the case, if the clay or earth burnt shall abound with vegetable matter, and if the burning is conducted in such a smothered way as to prevent the smoke or vegetable matter from escaping. But as it is the subsoil that is recommended, and seems to be generally used for burning, it is impossible any considerable quantity of vegetable matter can be found in it.

Much has been said by the advocates for this species of manure about the calcareous matter in the soil being calcined and formed into lime by the operation of burning. But I am disposed to consider this argument as far more plausible than solid. Calcareous matter is no doubt found, on chemical analysis, to a certain extent in some soils; perhaps some perceptible portion of it may be found in every soil. But it is seldom or never found in any soil, to such an extent as to be of much use as a manure to other land. Even where the soil is impregnated with a large portion of calcareous matter, if it is not in the form of limestone, but minutely mixed with it, the burning cannot either increase or much alter the lime. If it is in the form of stones, however small, or in what is called limestone gravel, there is little chance of its being calcined in the operation of burning the clay; it would go through that ordeal unaltered. Any change, therefore, that can be made upon the small portion of calcareous matter in the soil by burning in the manner directed, can scarcely have any perceptible effect, when that matter is applied as manure to other soils. And though it is possible that some qualities in particular soils, unfavourable to vegetation, may be corrected by burning, and that in some other instances the fire may render the clay more nutritive to plants (though I have not been able to trace this, or even to conjecture how it can happen,) yet I am much disposed to believe, that its effect as a mechanical mixture in opening the pores of the soil is the chief improvement that can be derived from the application of burnt clay as a manure. If it has

any other effect, it must be from the soot or carbonic matter collected during the operation of burning; or perhaps it may acquire, by the torrefaction, something of a stimulating quality, that may for a short time promote the growth of particular plants. But these qualities can only be to a small extent, and continue to act for a very limited period.

Having thus stated my own opinion and belief as to the utility of burnt clay as a manure, it is not necessary for me to say much upon the high recommendations given to it by those who first brought it into notice, or by others who have, either in theory or practice, entered into their views. It is far more agreeable to me to give my own opinions on any subject, than to dispute those of others. Though I have no scruple in stating, that the recommendation given of the *Florin* grass by Dr. Richardson, and also the first accounts of the effects of burnt clay, to both of which some respectable gentlemen became proselytes, were greatly exaggerated, still, as I believe the writers of these accounts, and those who believed in them, acted from principle, and had no intention to deceive the public, I would be sorry to say any thing to hurt their feelings, and would only caution the public against being misled.

The first account I ever saw of the powerful effects of burnt clay as an efficient manure to every soil, was in some communications from Mr. Alexander Craig, at Cally in Galloway, who recommended it so highly, that one might have expected it was to supersede all other manures. He says that Mr. Wallace, a tenant on the estate of Tongland, who had begun to use some of this manure, was so fully convinced of its superior efficiency that he would not be at the trouble of carting dung from Kirkeubright to his farm, though only a mile and a half distant, even if he were to get such dung in a present. This was certainly carrying the matter a great way too far; yet such was the demand for labourers capable of doing justice to the operation, that Galloway, and even Ireland, was ransacked for clay-burners. Clay-kilns were seen smoking in all directions; and the newspapers and periodical publications were often filled with the most flattering accounts of the newly discovered manure. Some of these accounts contradicted each other, as might well have been expected, on a subject so new, and respecting which several people seemed eager to be heard, and to repeat their improvements and detailed discoveries.

But this race for clay-burning did not continue long for, though the thing was only started in 1815, I have not seen a kiln burning during the last three or four years; and none of the original believers in its efficacy, within the circle of my knowledge, seem now disposed to speak upon that great improvement.

Having stated my opinions on the subject some years ago, I did not intend to repeat them, till I saw in your last Number, what Edward Burroughs, Esq., has recently published, respecting the effects of burnt clay as a manure. I am not disposed to follow this author through the course of his pamphlet; or if I were, I would be inclined to contradict several of his propositions. He makes a distinction between burning into ashes, which, he says, is suited to the subsoil, and what he calls torrefying, which is all that is to be done, when soil abounding with vegetable matter is used. His object seems to be, to preserve the vegetable matter from being dissipated by fire. But it would be proper to know how far the fire can be allowed to proceed, without injuring the vegetable matter. Burning and torrefaction are so nearly allied to each other, that I do not know where the one begins and the other ends. Torrefaction is synonymous with scorching or roasting; and I do not perceive that any one could ever consider the burning of the clay into manure was anything more than roasting it into ashes. It was surely never meant to burn it up by fervent heat, otherwise no manure would remain. But wherever Mr. Burroughs may draw the line between burning and torrefaction, I have no scruple to aver, that either the one or the other will completely dissipate the vegetable matter in the soil. That matter is so much more inflammable than any or common earth, that it will be burnt up and expelled from the mass

before the heat has advanced to the degree that could make the least change on the clay, beyond drying it, which might be done by exposure to the sun and droughts without the aid of fire. If merely drying the clay is what Mr. Burroughs means by torrefying, then certainly the vegetable matter will not be much injured by that operation. But whenever the fire is applied, the vegetable matter will be dissipated. If, by torrefaction, is meant no more than drying, then fallow only, and not fuel, is necessary. But if the clay is only dried, then the first heavy rain will reduce it to its former adhesive state; and neither it, nor the soil to which it is applied, will be in the least altered, in its mechanical arrangement, beyond one season, as in the case of ordinary fallow.

To give my ultimatum upon this subject, I regret that the discoveries of *Florin* grass, and the effects of burnt clay, have so far overrated their value. Both are useful and proper to be attended to—the grass to be raised on patches of marshy ground, and used as green food to cattle in winter; and the burnt earth as a corrector of the mechanical arrangement of a stubborn clay soil; and I have no doubt, but if they had been only recommended for these valuable purposes, they would have been brought into more general use than they yet are, or will be, till the prejudice against them, arising from the disappointment of expectations, raised high by too flattering descriptions, are removed.

I see Mr. Burroughs quotes Mr. Nasmith in support of his theories on this subject. But if he had seen, as I have done, that all Mr. Nasmith's experiments with burnt earth or brickdust, as he termed it, did not extend to more ground than an ordinary pair of blankets would cover, and was chiefly confined to experiments in flower-pots in his byre, he would not probably have referred to such authority. Speculations raised, and theories built upon such trifling experiments, will when so well told as Mr. Nasmith was able to do, mislead people at a distance. But none who saw them will be so easily deceived. Much injury has frequently been done to agriculture by extravagant theories and visionary speculations.

I am, &c.

WILLIAM AITON.

Hamilton, 12th October, 1821.

For the American Farmer.

ON THE PREPARATION OF CHEWING TOBACCO.

Essex, February 15th, 1820.

Dear Sir,

I am gratified that it is at last in my power to give you pretty full information in reply to your inquiries, relative to the modes, for there are several, of preparing our Chewing Tobacco. One part of this information will probably surprise you, as much as it did myself. This is, that the best manufacturers of chewing tobacco on the continent, are said to be in Baltimore. One of the most experienced and respectable manufacturers in Richmond, gave this answer to the Secretary of our Society, who was so kind as to make the inquiry for me; and he added, in confirmation of his opinion, that his own foreman had always been from Baltimore. The tobacco is purchased in Richmond by agents, appointed for the purpose, and sent round to your city. But to "make assurance doubly sure," I also made inquiries of several planters and farmers, who concurred generally in the following statement. That in the large way, the chewing tobacco was prepared chiefly in what are called "stemmaries," established in the towns of Richmond, Lynchburg and Petersburg. That the best tobacco is always selected, either from such as the inspectors reject from being "too high in case," or from such as is very dry.—This last they throw into bulk on blankets or cloths; water plentifully, by which they calculate on ten per cent. profit in the additional weight, and then cover it up. As soon as it is sufficiently in case to stem, this process is performed, after wiping

each leaf perfectly clean with a cloth. It is then twisted, and subjected, when in the proper order for prizing, (which is a matter to be learned only by experience), to very heavy pressure for three or four days, either in strong tubs or boxes, when it is taken out, and the twists reversed; after which it is again prized firmly into the vessels designed to contain it for sale. Where it is prepared in the small way, some prefer letting the tobacco get into "case," from the natural influence of the atmosphere; and after the first prizing with great force, take out the twists—nearly open the twists, by giving them a reversed turn by the hand, and then suffer them to dry for a day or two, when they are again prized for use. This method is said by many, to make far superior tobacco to the other, but it does not answer so well in the large way.—Some experienced consumers of chewing tobacco contend that it ought never to be prized at all, as the heavy pressure destroys what they call "the fine flavor and taste" of the article. For my own part, I neither make, nor use tobacco, having adopted pretty much the same opinion of it as is expressed by old Burton in his Anatomy of Melancholy—the most curious perhaps, of all the curious books, that ever was written. It was published in the early part of the seventeenth century, and subjected the author to the suspicion of being somewhat crack-brained. As I hope the same doubt may not attach to those who quote him, I shall venture to give you the passage, which may serve to amuse, if it does nothing else.

"Tobacco, divine, rare, superexcellent tobacco, which goes far beyond all their panaceas, potable gold, and philosopher's stones—a sovereign remedy to all diseases—a good vomit, I confess—a virtuous herbe, if it be well qualified, opportunely taken, and medicinally used, but as it is commonly abused by most men, which take it as tinker's dale—'tis a plague, a mischief, a violent purger of goods, lands, health; hellish, devilish, and damned tobacco, the ruine, and overthrow of body and soul."

I would not have you think me quite as violent as old Burton in my denunciations of this favorite weed, or "herbe," as he calls it, but I certainly think there is much truth in what he says—somewhat too coarsely expressed to be sure, for modern tastes, but still true in the main. I wish some of our farmers, who are killing their lands with it, would imbib the old gentleman's notions, so far as to abandon its culture for more improving crops.

What remains to be said on this subject, I must give you, as concisely as possible. The soil which is preferred by our best planters, is a generous, black loam—the hills are made from \$3 by 34 to 4 feet, according to the fertility of the land—much tobacco is cultivated with the plough, in beds, broken up in the fall. The best kinds are called "Big Frederick, Daniel, Jones, and Blue Prior," of which the first is most esteemed; all the different kinds are topped from eight to ten leaves cured with fire, and prized to an average weight of some 14 or 15 wt. per lb. The planters insist where they please, sell to the merchants generally by actual view, and carry most of their tobacco to Richmond and Petersburg before it is sold. The legal size of our hids I believe, is 54 inches by 34, and the inspectors are required by law, to break in two places, but often break the hids. in more.

FOR THE AMERICAN FARMER.

Distillation of Rum or Spirits

As conducted in Jamaica, with remarks on Cisterns or Vats, and Stills.

PHILADELPHIA, Dec-23d, 1821.

The following directions for the distillation of Rum, were written at my request, by the worthy Mr. William Hynton, formerly of Virginia, shortly after his return to Jamaica, from the United States, and as they may be useful to those engaged in the business, and the cultivation of the sugar cane, I send them to

you. I have not heard from him for several years past, and know not whether he be still living.

MR. J. S. SKINNER.

JAMES MEASE.

EXTRACT.

First. The vats or cisterns, (which to equalize, as much as possible to the changes of the American climate, I would advise to be placed under ground, and to have covers and puds, over them in winter,) ought to be of the same size as the liquor still, when they are filled within six inches of the top of the vat—there is great escape of spirit if they are filled higher.—Note. From much observation, I am persuaded, small stills yield more spirit than large ones, which are now generally used in Jamaica.

2d. Experience has lately proved to me, that shallow vats or cisterns work off quicker than deep ones. The fermentation is less impeded, and is more complete. I have made two this year, of 9 and 10 feet square, and 3 deep, set in clay puddle (in place of ramming them) which work off in three days after being set with sweets, &c. whereas those of five feet deep, of the same quantity of gallons, take five days. Round vats I prefer to square, as they are easier made tight with puddle or ramming—two inch white pine will make them; and they may be doweled and hooped with wood.

3d. Twelve or fourteen cisterns or vats, will make (in Jamaica) 12 puncheons of rum per week, if they are 10-0 gallons each.

All sweets yield best when fresh and new. Molasses sent to America undergoes a strong fermentation before it reaches there; and occasions an acid flavor and hogo in the spirit. The empyreuma is sometimes got rid of here, by putting 6 gallons of lye to each 1000 of liquor, or by not mixing the first and last 15 to 20 gallons of low wines or runnings, first and last, with the product of the still—say, 286 to 320 gallons of low wines, from 140 gallons of good molasses, or its equal in sw. etc., or skinnings and cane juice. Six gallons of skinnings, eight of cane liquor, to one of molasses.

The above quantity of molasses, you will perceive, is 1 per cent. a high but not profitable set, adopted from scarcity of fuel; 12 per cent. is more productive, thus, molasses 12 per cent. water 40 to 45 per cent. mixed as below—Dunder (or returns of the liquor still.) cooled and settled, as directed, 48 per cent.

4th. A large vessel capable of holding the quantity of molasses, used for one cistern, and twice as much water, made like a bumptin, to have a shaft and cross paddles at and through the foot of it—(like the old washing "Dum Betty's") should be placed convenient to the whole



cisterns, and elevated with a cock to run off to them, the liquor when mixed, by being well churned with a crank handle fastened to the top of the shaft. After I left Jamaica, and is now again renewed its principle is clear. The specific gravity of sweets is so much more than water, &c. which cisterns are made up with, the great part of them, (especially in the deep cisterns,) settle at the bottom, and are not fermented; but are thrown away with the residuum of the cistern, as it is cleaned.

Dunder is cooled and clarified in various ways—



most, by having two vats or cisterns; one or two near or under the still cock, as high as it will admit it, and wide as you can have it to cool quickly. In this or these, you have a cap with collar to fasten over a hole at the bottom, above the surface of it, to allow the thick part to settle, and a plug to stop or let off the clear dunder into another vat below it. In the lower one, the dunder is pumped up, to mix our liquor, i. e., molasses and water 52 to 57 per cent. &c. the margin. But I have adopted a new plan this year, to save expense of the lower dunder cistern—

that is, a large hollow trunk of a tree, one foot diameter, 6 inches longer than the depth of the upper or lower vat, is placed upright, with its foot let into and corked at the bottom and secured fast by a frame at the top. This tube has holes in it, at 6 to 8 inches asunder, and 4 from the bottom, to which plugs are fixed to draw out and let the dunder in, as it settles from the surface. The pump is fixed in the tube or trunk, to pump up the dunder as it clears, and is let in by the plugs drawn. I give an imperfect sketch in the margin.



Stills should be made flat or squat, to afford the action of fire, on as great a surface as possible, and to force up vapour or spirit in the perpendicular line it rises. This idea I suggested in 1789—sent out for a still of 1600 gallons on my own plan in 1790, and hung it in 1791. Before it was made and exposed to view in Bristol. I verily believe, flat stills were not thought of. Experience has since proved their superiority; as also of copper goose necks to the head, instead of pewter. The head to be one-third the contents or size of the still. My still is three times the diameter of its depth.

Low wines (as here called, run from liquor; mixed as here described) are put into the small still or rectifier of 300 to 500 gallons and its runnings (until it gets down to the proof of low wines again, which is put by and mixed with the liquor low wines) are put together, to make our rum or bubble proof 22, equal to Ducas, Hydro, 5th and one half class, American proof for duty.

But when choice rum is wanted, the first and last few gallons (which has the empyreuma) are put also by and not mixed with what is kept for use—as in the liquor or first running. If to every 100 gallons of this rum, you add one to two lbs. of carbon—you have fine flavored rum, and by shifting your rum thus made, three or four times from one puncheon to another, by passing it through a quill into a cullender standing over and two feet above a large tub to catch or receive it, to remove again into the puncheon, you make rum six weeks old equal to three or four years! i. e. one year to every shifting or discharging it. A similar mode to purify water, is used in the British Navy, by allowing the air to act on every particle.

FOR THE AMERICAN FARMER.

CORN.

Locust Level, Frederick County }
February 3, 1822. }

Considering the extensive circulation which your paper has, this may not reach its extreme subscribers, before they may be preparing to plant corn. I will state an experiment, made last Spring (claiming no merit, as it was not intentionally, but Providence!) my first plantings were done the last week in April (prefer early planting, it shoots lower, fills better and less risk of frost in the fall) in part of a field, which had been in clover the three preceding years; the ground was broken up deep early in the spring, twice well harrowed; then furrowed out with the plough, followed by a light one horse harrow over the corn. This planting was nearly destroyed by the Cut-worm. On 23d May, corn was put into a large bucking tub, with brine made of salt-petre, for planting same ground owing to a heavy rain prevented as intended, and the corn remained four days in the brine exposed; fearing it would sprout too much, had it taken out into baskets to drain and put in a house, as the ground was still too wet. (If pre-fer planting, when its what we term dry); on the 29th, prepared to plant, when, on examining the corn, found it very warm and in a high state of germination, some grains having two or three roots from one to three inches long, besides the shoot which was only about one half inch—they were tough,

not easily to be broken or pulled off. I hesitated planting it, but finally concluded to try the experiment. The ground was new furrowed out, as near between the old furrows as practicable. The sprouted corn was exhausted before the ground was completed, the balance was finished with corn only immersed in the brine; it was all covered very lightly with the hoe. (As I now suspected the first planting was covered too deep, though done with the view of counteracting the cut worm, it had, I believe, the contrary effect; for they, like all other pests of society, when committing depredations, prefer darkness to light, and cut it off below the surface.) In forty-eight hours after planting, the sprouted corn was visible, and kept ahead of the others, evidently discernable to the eye, and more so when gathered by measurement.—The ground being equally good, I have my corn thinned as soon as it can be pulled up by the roots—never suffer it to be cut off—also, top before blading, believing it a ben fit to the corn, to top it even before its perfectly filled, provided they are cut above the joint over the ears—the roots then have less to nourish and support, and winds do not blow it down.—Blading too soon injures the corn by robbing it of part of its nutriment. I gather my corn by husking it on the stalks, having carts or wagons along to receive it as husked, without its touching the ground, it being much the most expeditious, and safest way—five good hands can secure, if the corn is large and convenient to the corn house, forty barrels, or two hundred bushels a day.

Sir, I forbear stating the number of bushels I raised from the acre, as it was so far short of what I have seen stated to have been raised in the Eastern States, where their land and climate is not superior by nature—I will inform you as soon as (if ever) I can equal or excel them, by fair measurement.

From your Friend, and

Very Humble Servant,

JOHN HUGHES.

P. S.—Part of same field, and alike covered, was broke up the preceding fall or winter, and planted in corn about 1st day of May, which was very little injured by the cut worm, except a few rows adjoining that not broke up, which proves the utility of fall, or winter ploughing to prevent this worm, also that they can travel a short distance to do mischief. J. H.

From the Philadelphia Democratic Press.

WOOL, HEMP, FLAX AND POTATOES.

We have for some considerable time laboured to impress our country readers with the conviction that it was their interest, and the interest of the nation, that they should pay more attention to the growth of the several articles which head this paragraph. That their convictions should be deep and permanent, we have from time to time presented them with such facts as were best calculated to impress this great truth upon their memories. We have stated and repeat that to our knowledge for twenty years there has not been grown in Pennsylvania as many Potatoes as the inhabitants have actually consumed, and they would have consumed many more had they been plentifully cultivated; and we have stated and repeated that for twenty years, Potatoes have been the most profitable crop to the cultivator in Pennsylvania. This was true, even when our Bread stuffs brought the high prices they did in Europe.

We have also stated and repeat, that we send large quantities of Flax seed to Ireland, and not only import it from that country manufactured into Linen, but we import large quantities of the flax itself, grown from our own seed, for the purpose of feeding our manuf. cures, and they would be more numerous and extensive than they are, if our Farmers would grow flax in greater abundance. Flax is always in demand and brings a good price. Rich in industry and ingenuity, with a fertile soil and climate we could grow abundance, yet when our Navy Commissioners contract for materials to float our Star Spangled Banner, we are obliged to go Cash and Cap in hand to the dominions of the crown of Great Britain, to pray them to let us have as much flax as will make

sails for our little navy. Is not this a shame? If neither self-interest nor the interest of the country are sufficient to stimulate us to the growth of Flax, let us call in our individual and national Pride and let them goad us to its growth at all events and from whatever motives—let Flax be cultivated abundantly. Are not these statements sufficient encouragement to plant Potatoes and grow Flax, especially when our Bread stuffs are on hand in large quantities.

A few words with respect to Hemp and Wool. At the port of Boston alone, and it is the only port we have heard from, there has been imported, since the peace, two hundred thousand pounds of Wool. All the wool in the nation is worked up and we are obliged to go abroad for wool to keep our manufactories going at a time when, if our farmers would turn their attention to the subject, we might not only grow Wool enough to feed and increase our manufactories, but we might export enough to keep warm some thousands of shivering wretches.

With respect to Hemp the case is still stronger.—Within the last year, as is proved by the report of the Secretary of the Treasury, we have imported nearly eight thousand tons of Hemp and hempen goods. Aware that this fact will stagger belief, we shall subjoin extracts from the official report to prove what we have said. Of the quantity thus imported it will be seen that nearly one half in weight, and three fourths in value of the articles were manufactured abroad. We note this fact to shew our Farmers that if they would grow the Hemp, they would not only put money in their own pockets and keep wealth in their own country, but they would find means to employ some thousands of the F-F-I-W citizens in the manufacture of it. This would be another obvious advantage to them. All those thousands must eat and drink and have the necessities and comforts of life, and it is the Farmer who must supply them. The more manufacturers the more consumers, the more consumers the greater demand, & the greater the demand, the higher the prices. Would not all this be the better for the Farmer and the Nation? Let every man answer for himself.

An account of the Hemp and Hempen Goods imported into the United States, during the year 1820, abstracted from the Report of the Secretary of the Treasury.

	Tons.	cwt.	qr.	lb.
26,859 pieces of Russia Duck,				
equal to - - - - -	599	10	2	14
16,185 do Ravens do	159	0	0	11
1,814 do Holland do	49	0	2	22
4,486 do English do	100	2	2	20
27,000 do Cotton Bagging,				
each 32 yds. equal to 1,180,	1508	2	1	16
600 yards,				
14,738 do do brown Russia Sheet,	163	0	3	15
643 do white do	7	3	1	14
267,312 lbs Cables and tarred				
Cordage,	119	6	3	10
246,321 do untarred do	109	19	0	6
221,793 do Twine,	99	18	0	14
93,707 cwt. Hemp,	4685	7	0	0
Total	Tons 7691	11	3	13

COMMUNICATED.

To prevent Dogs from Sucking Eggs.

Take of emetic tartar from four to eight grains, according to the age and strength of your dog, break the end of an egg, put in the tartar and mix it—if your dog is disposed to suck eggs, he will readily eat it. Confine him from cold water—the next day repeat the dose, which continue to do on each succeeding day until he refuses it, which will probably be the third or fourth day. After this, I have never known them guilty of the like offence—instead of being the destroyer of our good wivs poultry, the same dog becomes their faithful protector.

Will you, or some of your correspondents give us information of the best course to pursue to prevent

hogs from being infested with vermin, and how to destroy the vermin when they are infested.

A VIRGINIA FARMER.

January 21, 1820.

CATALPA OR CATAWBA WOOD.

MR. SKINNER,

Dear Sir,—Do you know any thing, or can you obtain authentic information from any one of your numerous correspondents, concerning the durability of the Catalpa or Catawba wood, when put in the ground? I have heard, and on good authority, of a gate-post of this tree in Vincennes, Indiana, which has been in the ground for forty years or more, and is yet in a sound state. If this be the fact, or if it will last as long as Black Locust, Mulberry or Cedar, it is certainly better worth cultivation as it grows much faster. I should judge, in favourable situations the tree would grow sufficiently large in ten years, from the seed, to answer the ordinary purposes of post and railing.

Very respectfully,

A SUBSCRIBER.

HOPKINSVILLE, KENTUCKY,

January 8, 1821.

From the London Farmer's Journal.
RECEIPT FOR MAKING GREEN GRAPE WINE.
Lewisham Nursery, Oct. 7, 1821.

Sir,—Having for a number of years been very fortunate in making British Wines, I herewith send you a receipt for making Green Grape Wine, which is particularly applicable this late season, as there are many farmers, and others in the country, who have large quantities of grapes that will not ripen, and which they will find, by making use of them in this way, will turn to a very good account. Care must be taken to have the casks, bottles, &c. very sweet and clean, and I have no hesitation in pronouncing this the finest British wine that can be made.

I am, Sir, your obedient servant,

JOHN WILMOTT.

To make Champagne from Grapes, equal to FOREIGN.

Gather the grapes when they are just turning, or about half ripe; pound them in a tub, and to every quart of berries so pounded, put two quarts of water—let it stand in a mash-tub for fourteen days, when it is to be drawn off—and to every gallon of liquor put three pounds of lump sugar: when dissolved, cask it, and after working, bung it down. In about six months it will be fit to drink, when it should be bottled and tied down, or wired, if it is intended to be kept more than one year.

On improving exhausted lands

IN PENNSYLVANIA.—BY WILLIAM PAINTER.

[Communicated for publication in the American Farmer, by G. W. Jeffreys, of North Carolina.]

Painter's Cross Roads Pa. Second Mo. 18th, 1819.

DEAR SIR—I received thy letter on the 9 Mo last; at that time I was busily employed in rebuilding my barn (which was destroyed by lightning last year;) that, with my many other engagements at that time must apologise for my silence. I much approve of Agricultural Societies, especially where the members are practical farmers—I shall now give you such information as has come under my notice. First, with respect to the improvement of exhausted lands: the method I have pursued (as my land was ten years ago principally of that description) is as follows: one farm of 100 acres of cleared land, divided into 8 fields of 12½ acres each, the latter end of the 3d and be-

ginning of the 4th mo. (March and April) I sow the whole with 5 pecks of plaster of paris per acre, with 50 bushels of stone lime per acre on such parts as are intended for Indian Corn; in my commencement of farming I planted two fields of the above description in order to bring them sooner into grass, and to destroy the briars and brambles, in which the land was much over-run.—It is a common practice to commence ploughing for Indian Corn, about the 10th of 4th month; we plough our hilly light lands from 5 to 7 inches deep, then spread the lime and harrow it in sufficiently to incorporate it intimately with the surface of the land; as leaving it for dews and rain to fall on will form it into a hard crust, in which case I believe one half of the beneficial effects are lost for a considerable time, as it will remain in that state for many years.—We then throw two furrows together as deep as it will admit, without disturbing the sod (if any); then cross at right angles in single furrows, making the squares 44 feet, three stalks in a hill at this distance is sufficient—but if there should be any appearance of the grub worm, (which has destroyed many crops in this part of the country, for two or three years past) I would recommend the following method.

Take an iron bar pointed at one end, or where they are not at hand, a piece of strong wood, say five feet long, pointed with iron. One foot from the end insert an iron pin, where the main stick should be two inches in diameter, with a regular taper to the point.

Then plant 8 or 10 grains in a hill, pressing them down with the bottom of the hoe; one person with either of the described instruments will readily make holes ten or twelve inches deep, as fast as another will cover the corn. I preferred the wooden instrument, as it was much lighter than the iron bar, and with the assistance of the foot on the pin I could make them with ease—the holes may be made in the centre of the hills; if one or two of the grains should be carried down with the instrument, there will be sufficient left; the value of seed corn being so small, a certainty of insuring the crop ought to be a great consideration.—I have pursued this method with great success, when my neighbours have had their crops mostly cut off with the worm, though they replanted three or more times, which is double the work to insure it the first planting.

The worms in searching for food for several days, while there is no living vegetable substance on or near the surface, the corn not having vegetated, they principally fall into the graves prepared for them. In the years 1816 and 1817, I believe the worms averaged from eight to ten in every hole in the field, which would have been sufficient to have destroyed ten times the usual quantity planted.—The corn was planted the first of the 5th mo.; about the twentieth we began to replant, when in going over the field I believe there was not one hill in one thousand missed, though the worms were as thick as I ever saw them in any land, before we planted; of course it was unnecessary to go over much of the field. I then plough up the middles, when the corn is three or four inches high, and cross the ridges with a hoe harrow twice in a row, with a child or two of 10 or 12 years old, with a small hand rake with 4 teeth three inches long and two apart in the head, to loosen the ground in the hills; that leaves the ground in a fine state for vegetation.

I prefer the hoe harrow in the cultivation of the crop on light lands, before any other implement in use with us, as it leaves the land level and not subject to wash; about three times crossing twice in a row is sufficient if done before the ground gets foul, to keep it in good order the whole season, which is much less labour than ploughing, and leaves the land in better condition for a spring crop—with this culture I have saved from 40 to 50 bushels of corn per acre at the commencement of my farming and a greater quantity after the second and third liming of fifty bushels per acre.—As soon as the corn is well out of the milk, it ought to be cut and set up in shocks; the plan I have taken is to bind the tops of four hills together with a handful of blades, at such distances as will make 150 or 200 hills in a shock; then tie it round with straw corn stalks, let it stand until you have leisure to lusk it, when you may put four heaps or shocks

together; it may stand in this situation until used. A common worn out grass sythe cut in two, will make two good instruments for cutting the corn, which you may hold with one hand and cut with the other while you can conveniently hold the corn, then set it round the hills tied up. Fodder saved this way will winter a bullock of 600 lbs. to the acre, with straw once a day, and keep them in fine heart.—In our common rotation of crops, oats or barley succeed the corn crop, which ought to be sown the first of the 4th mo.; oats in a fine season will produce 60 bushels, and barley from 25 to 30 bush. per acre; soon after harvest draw out all your manure, and plough it in three inches deep; never disturb the soil to the bottom from the first ploughing, as it is thought best to keep the lime and other manure near the surface.—It was formerly my practice to heap my manure early in spring, but from the many experiments I have made, I think it better when the cattle go to grass to cover the manure in the barn yard with earth an inch or two thick, and let it remain in that situation until you are ready to draw it out. In case it is thrown up in large heaps, we certainly lose one half in excessive fermentation.—The ground with one harrowing is now nearly ready for the wheat crop, which on hilly land we first plough and harrow in, where the land is flatter we plough in lightly.—Sow two quarts of timothy seed per acre before any rain falls, as in the loose state which the plough or harrow leaves, it covers it much better than brushing it in, as that covers many of the seed too deep to vegetate. The first of 4th mo. sow four quarts of red clover seed to the acre. The plaster of paris I sow on all my land every spring, and sometimes after harvest on the young clover.—My situation five miles from the Delaware, is very uncertain, for wheat crops, as the snows lay but a short time to which they do in the more interior parts of the state. I have raised from 15 to 30 bushels of wheat per acre, and in one or two instances near 40 on small parts of a field.

I have lately been 30 miles to see the operation of burning earth, which appears to me to be the best source of manure, I am acquainted with. I intend trying it this spring; if it answers my expectation. I will forward the process in a communication.

With respect I remain thy friend,

WILLIAM PAINTER

From the London Farmers Journal of Aug 25 1821.

ON THE WOOL TRADE.

Sir,

An error of some importance seems to have crept into one of our daily newspapers, (I forget which) and as the subject relates to agriculture I hope you will not object to correct it, especially as it may lead to objects and communications of some consequence to the community at large.

The paper stated that Wool from Van Dieman's Land had sold in this country at 10s. 4d. per lb. I was present at the sale of the Wool alluded to, and I was attentive to the prices and noted them down, which I have copied, and now send them to you. It was sold by Messrs. Marsh and Ebsworth, of Coleman street, on the 17th August last, at Garraway's Coffee House.

Lot 1.	three bales lambs' wool,	2s. 7d.
2.	three ditto	2s. 6d.
3.	two ditto	2s. 5d.
4.	three ditto ewes' wool, &c.	2s. 5d.
5.	two ditto ditto	2s. 9d.
6 & 7.	seven ditto ditto	2s. 6d.
23	three ditto ditto	2s. 7d.
24.	three ditto ditto	2s. 10d.
8, 10, 13, 22,	ten ditto ditto	2s. 11d.
9, 23,	four ditto	2s.
26,	three ditto	3s. 1d.
12 14,	four ditto	3s. 3d.
15,	two ditto	3s. 5d.
21.	one ditto	3s. 6d.
11, 20,	three ditto	3s. 7d.
16,	two ditto	3s. 8d.
17.	two ditto	3s. 10d.

18,	two ditto	5s. 6d.
19,	one ditto	10s. 4d.

The above lots were sold to manufacturers, and the last lot purchased by Mr. Hirst, of Leeds.

The opinions passed upon this and the other lots were unanimous as to its superior quality, compared with that from Spain, and with a few exceptions, from Saxony.

The history of the lot nineteen I have extracted from a memorandum of the year 1803, and it is this:

"New South Wales Sheep.—Mr. McArthur has brought over some wool of these sheep, and it appears that it is equal to the Spanish, its value about 5s. to 6s. per lb. They are originally Spanish sheep, sent by the Dutch to the Cape, and from thence they were purchased and taken to port Jackson. Mr. McArthur crossed all his mixed bred ewes (which being from the Cape were large,) with a Spanish ram, and he proposes to supply this country in about twenty years with wool equal to Spanish, which is now done at an annual expence of £1,800,000."

The above is made I find from the Philosophical Magazine of that year. Since that period it appears in evidence before the Committee of the House of Commons, on Gaols and Transportation, (to which I refer your readers,) that about ten years ago Mr. McArthur carried over with him to New South Wales some Spanish sheep he purchased at the king's sale; from these pure ewes have sprung his present pure bred flock and pure rams, which produced the wool of lot 19. The highest crosses produced the lot 18, and the various other crosses as I have enumerated.—The carcasses of these crossed wethers weigh on an average 50 lbs. each, and the average weight of the fleece is from 2½ to 3 lbs.

The superior climate of New South Wales appears to have operated powerfully in aid of the great attention and care bestowed by Mr. McArthur on his flocks.

From the minute referred to above, it appears he has about 7000 sheep of various crosses; and the Merino blood has been spread more or less nearly all through the colony; so that there can be but little doubt of the increase of that breed in the colony, under proper attention and care.

COLUMELLA MINOR.

Tuesday se'night a young man was backed for twenty guineas to go sixteen miles in two hours, on a two mile piece marked out on the Bristol road, near Gloucester, England, which he accomplished two minutes and a half within the given time. In consequence of a fall of thick small rain the road became so greasy for the last hour that he ran in his stockings without shoes.

RECIPES.

Rheumatism.—It is said to be a specific for the Rheumatism to apply a cabbage leaf to the part affected.—Choose a perfect leaf, cut off the protuberant stalk at the back, and place it on the part with a bandage of flannel, at going to bed. It will produce a local perspiration, and in two or three repetitions, effect a cure.

Cholera Morbus.—One quarter of a pound of fresh mutton suet, cleared of the fibres, &c. to a quart of new milk, which must be boiled, or rather simmered down to a pint; a table spoonful taken at a time, will cure the most inveterate summer complaint, particularly in children.

Printed every Friday at \$4 per annum, for JOHN S. SKINNER, Editor, by Joseph Robinson, at the N. W. corner of Market and Belvidere-streets, Baltimore, where every description of Book and Job Printing is executed.—Orders from a distance for Binding, with proper directions, promptly attended to.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

VOL. III.

BALTIMORE, FRIDAY, FEBRUARY 22, 1822.

NUM. 48.

AGRICULTURE.

ADDRESS

Delivered before the Worcester Agricultural Society, Massachusetts, September 27, 1821, being their Anniversary Cattle Show and Exhibition of Manufactures. BY HON. JONATHAN RUSSELL.

Worcester, September 27, 1821.

HON. JONATHAN RUSSELL—

The Committee of Arrangements for the Cattle Show and Exhibition of Manufactures, of the Worcester Agricultural Society, in compliance with a vote of the Trustees, have the honour to present to you the respectful compliments of the Board, with their thanks for the very interesting Address delivered by you before the Society this day, and to request of you the additional gratification of a copy for their disposal.

I have the honour to be, Sir,

Most respectfully,

Your obedient Servant,

LEVI LINCOLN, *Chairman of the Committee, and by their order.*

Worcester, 27th, Sept. 1821.

Mrs. RUSSELL feels much flattered by the wishes of the Trustees of the Worcester Agricultural Society communicated through their Committee, to have the Address delivered by him placed at their disposal, and believes it to be his duty to present them herewith a copy accordingly.

HON. LEVI LINCOLN, *Chairman of the Committee of Arrangements.*

ADDRESS.

The brief period which can be spared for this Address from the multifarious avocations of the day, does not permit the speaker to attempt a minute development of the actual condition, or prospective improvement of Agriculture, or even a general discussion of its leading principles. The subject is boundless; and the few moments allowed to treat it here, a point.

The history of Agriculture, the mother and the nurse of all the arts, is coeval with the history of man; and its extent limited only by his ignorance, his barbarism, or his servitude. The Hebrew records attest its antiquity, and the remains of the most remote heathen science corroborate their testimony. More than four thousand years ago, Egypt was highly skilled in the cultivation of the earth, and consecrated her imperishable monuments to the god of the seasons. Homer, about eight hundred years before our era, sung of the luxuriant harvests of the then olden time; and Hesiod, who was nearly his contemporary, wrote a didactic poem on Husbandry, and spoke even of the engraving of fruit trees, as the practice of his age. Some centuries later, many Grecian sages, and among them Xenophon, whose work was afterwards translated by Cicero, wrote on this interesting subject. The Roman authors on Agriculture were likewise numerous; and among them too are to be found some of the most illustrious names of antiquity. The stern Cato, the first of them in order of time, did not, in all his hostility to Carthage, prevent the works of Mago, an Agriculture, being thence brought to Rome—while the other spoils of the Carthaginian libraries were distributed among the Princes of Africa.

In the long night of superstition and barbarian tyranny, which followed the downfall of Roman domination, we can find, indeed, no powerful and enlightened patron of Agriculture; for even Charlemagne, in the cultivation of his own estates, appears to have acted more like the miser than the monarch, and to have preferred his little, sordid, personal interests to the great interests of humanity.

From Constantine Pongatus to the Florentine Crescenzo, a period of nearly eight hundred years, no attempt was made in Europe for the revival of Agriculture. During that long and gloomy period, the sword was preferred to the plough; and bigotry and feudal pride joined to degrade and to paralyze the efforts of honest industry. The descendants of Goths and Vandals, who had abandoned a country which prejudice or barbarism had forbidden them to cultivate, would not deign to associate in the labours of the field, with the descendants of the Cincinnati and the Cesars, who had become their vassals. Altars and arms were the only objects of ambition to ignorant Monks and haughty Barons; and Agriculture, the noblest occupation of freemen, was regarded as an employment becoming only the meanest slaves.

The loud voice of modern times, in favour of Agriculture, has, at last, afforded some indemnity to mankind, for the disgraceful silence of the period just mentioned. Since the essay on Husbandry, composed by Crescenzo, towards the close of the fifteenth century, and, particularly, since the treaty of Aix-la-Chapelle, about the middle of the last century, statesmen and philosophers and philanthropists, of all nations, have rallied around this invaluable art; the new and wonderful discoveries of chemistry have, more recently, been enlisted into its service. The great principles of this art have now, nearly throughout all Europe, been elucidated and inculcated, and its theory rendered almost perfect.

Oriental sages—but I need not swell this account to show the impracticability of treating here, in all its details, all that is known on a subject as old as recorded time, and as extensive as terrestrial space, and which, in every age and country the least enlightened has already commanded the attention of so many of the best and wisest of mankind. An essay indeed, on the cultivation of a single plant, or on the invention and various construction of a single implement of husbandry, would not only exceed the time allowed to this performance, but would, it is feared, exhaust the patience of this audience.

To trace, for instance, the culture of Wheat to its origin, which the Egyptians ascribed to the bounty of Isis; or to attempt even a cursory treatise on the Plough, for the invention of which the same people believed themselves to be indebted to Osiris—would consume the remnant of the day, and night would close on the unfinished labour.

That Isis was the moon, and Orisis the sun, adored in early times by the inhabitants of the Nile, as the divinities of light and life, is sufficient to show the fabulous sources to which this plant and this implement were attributed. It is not even now known to what country mankind were first indebted for Wheat. It grows, indeed spontaneously on the wastes of Persia; but it flourishes in the same manner on the uncultivated plains of Buenos Ayres, and may be, alike, an exotic in both. The learned, however, are agreed that it belongs to the family of the grasses, and that it was, originally, even a very small individual of that family.

Bountiful as nature has been to man in the abundance and diversity of her gifts, it is for this plant he ought to be particularly grateful. It has in every age

furnished the principal nourishment of civilized man; and while it is singularly qualified to sustain his health and life, and to administer to his comforts and even to his enjoyments, it appears to be specially privileged to dwell with him in every region of the earth, and every where to promote and to reward his industry. It accommodates itself to all the varieties of climate in both hemispheres. It supports the ardent beams of a tropical sun, and appears to gather strength and vigour beneath the ice and snow of a polar winter. It once produced, on the southern borders of the Mediterranean, its hundred fold, and thence fed imperial Rome; and now, from the bleak shores of the Baltic, it sends the surplus of its abundant harvests, to relieve the wants and to reproach the error, the ignorance, or the indolence of those who dwell under milder skies.

Wheat not only endures, successfully, the temperature of every clime, but prospers on every soil where it receives the hospitable and fostering care of man. It requires, indeed, a less portion of this care on some congenial soils; yet it affords for it, on all, at least a just indemnity. When skillfully cultivated, it flourishes not only on the rich and generous loams of Brabant and Marshalland, but on the more penurious earths of Westphalia and Brandenburg, and, aided by irrigation, even on the sands of Lybia.

In its distinct species, which are few, and in its scarcely distinguishable varieties, which are many, it retains the characteristic lineaments and the vital virtues of its common ancestor; and in every part of the globe, when not proscribed by ignorance, servitude or superstition, it has furnished to man, without any mystical allusion, the staff of life. How to remove the interdiction, which appears to have been imposed, in this section of the union, on the cultivation of this precious plant, there is not time here to inquire.

Coeval with Wheat, and the constant instrument of its production is the Plough. This plant and this instrument have, by the universal suffrage of all ages, not only taken rank of all others, but singly or united, have every where been recognised as the representatives of the whole empire of Agriculture.

On the brazen gates, found among the ruins of ancient Thebes, is to be seen the image of the Plough; and the form it had already acquired, in that remote period, is still practically retained in some of the countries of Europe. Before receiving that form, it had probably been for centuries passing through a succession of gradual improvements, from its first rude and simple origin, which is supposed to have been only a sharpened stake. To this stake succeeded a hook, used as a hoe, or drawn as a plough.

The very term, Plough owing to the great diversity in its subject, gives, even now, no precise idea of material, dimension, or form. It suggests merely to the mind some instrument, of whatever composed, or however fashioned, that has the power, acting in a certain direction, to divide, and, in a greater or less degree, to pulverise the soil. The division or the pulverization of the soil is indeed the great end proposed by this instrument; and that kind of Plough which most effectually attains this end, and with the least expense of time and labour, is to be preferred to all others. No kind of Plough yet invented, however, effects this object so perfectly as the spade or hoe; and its only advantage over them is derived from its greater expedition. The same space of ground, when cultivated with the spade or hoe, furnishes a much greater amount of subsistence for man, than when cultivated with the share.

The adage ascribed to the elder Cato—"Change not your plough,"—is now very generally and justly rejected. Attempts indeed, are making not only to

give to this venerable implement the form best adapted to the functions which it is destined to perform, but to replace it by some more efficient and economical instrument. The relative merit of Ploughs now used, in respect to each other; or in respect to the instruments proposed to replace them, furnishes an interesting subject of inquiry to the husbandman, but cannot be treated here. It may be permitted to observe, however, that while ploughs continue in use, we ought not to ask of Cato, or others, what shall be, invariably, their size or form—or how many cattle shall be constantly employed to work them; but we ought simply to adapt the Plough to the soil and to the intended crop, and the team to the Plough.

Although it be indiscreet to treat here on a single plant, or on a single implement of husbandry, in all their respective relations; and although the whole circle of the sciences may be made tributary to the art of Agriculture—yet the great principles of this art have, recently, been so simplified, as no longer to require either extraordinary erudition or talents for its adequate comprehension or useful application—A disposition to seek for truth, to renounce error and prejudice, and to profit by the experience of others as well as by our own, is all that is necessary, with due diligence and industry, to succeed in the attainment of a competent practical knowledge of Agriculture.

One of the most inveterate and generally prevailing errors in Husbandry, elsewhere, appears to have been a belief that the soil, like animal nature, required repose, and accordingly to leave it, periodically, fallow or uncultivated. This error is now almost exploded; and a judicious rotation of crops, with the proper tillage and the due accession of extraneous support, has been found sufficient not only to maintain the productive vigor of the soil, but to improve it. Although in this part of the country, fallows, it is believed, were never or but rarely considered a necessary portion of an established course of Husbandry, yet there appears to have been substituted for them no systematic rotation of crops, to keep the land in heart, and to augment its fertility. The soil, indeed, has been generally allowed no rest nor repose, but worried with a continual repetition of the same crop, until its vegetative power was exhausted, and then left for a barren pasture or a stunted woodland.

The kind of crops, and the order in which they ought to succeed each other, must principally be regulated by physical and local considerations—that is, by the nature of the climate and of the soil. Over the climate man can boast no direct or positive influence; and if he act wisely, he will humbly conform to its laws, as learnt from experience, nor presumptuously expect that they will be suspended or modified for his special accommodation. With the soil he holds a different relation, and is qualified to act in a more independent manner. By long and attentive observation, or by brief experimental analysis, he can ascertain its component parts, and their various properties, and its peculiar fitness for the healthful production of every useful plant. He can diminish the deleterious superabundance of its stagnant waters; and he will never fail to do so, if he would quaff life to reward his labor. He can reduce its excesses, or supply its deficiencies, by a skillful mixture with other earths. He can excite and augment its productive energies by the application of appropriate manures. And, above all, he can woo and win its labour, and secure its munificence, by cheerfully offering to it the ordained homage of his labor.

In the selection of successive crops, equally congenial to the peculiarities of soil and climate, it is wise to prefer those which, on a given surface, and with the same expense of toil and time, will contribute, directly or indirectly, most to the subsistence or pleasure of man. Among the physical means, too, of advancing the interests of Agriculture, are the choice of the fairest seed, and the skilful breeding and treatment of the best races of those useful animals who aid our labors, or furnish us with food or raiment.

Important, however, as the physical considerations, here briefly and partially enumerated, are to

the support and advancement of the great art on which, not the comforts only, but the very existence of the human race mainly depend—still they are of secondary importance and comparatively of little effect, when unassisted by those moral influences which conspire to stimulate and to aid individual and social man in the pursuit of his own happiness, and in the promotion of the general welfare of his species. Although, as has already been observed, the theory of cultivating the earth has of late been brought nigh to perfection—yet the practical improvement of this art, in the absence of the moral influences, just suggested, has made but little progress; for the condition of the husbandman has remained nearly the same.

The Calmuk still wanders on the borders of the Wolga, covered with loathsome diseases, produced by the filth in which he moves, and the half-rotten flesh on which he feeds; and is still exposed to lose his nose, his ears, or his thumbs, at the good pleasure of his chief.

The Hungarian peasant still coats his shirt with a layer of grease, to save a summer's washing—and sleeps abroad in the open air, with his cattle, or burrows at home, with his swine; stationary or avagabond, he is still a slave; and even blesses the memory of Maria Theresa, for rescuing him from more than two dozen strokes with a cane, for mere insolent words to his master—and the mother of his children learn from more than the same number, for the same grave offence, with a switch.

The vassal of Bohemia is still fixed to the soil, and transferred with it and its title of nobility to the new baron; for slavery and nobility are there, alike, vendible articles.

The Norwegian still mixes in his bread the bark of trees; and the laborer of the fertile fields of Lombardy, while he reaps luxuriant harvests for a foreign master, is compelled to nourish himself, his wife, and his children on a coarse and scanty portion of polenta, savored perhaps with a relish of garlic, or a few drops of rancid oil.

The farmers of Westphalia still smoke themselves and their families, with their bacon, in a common apartment; and many of the inhabitants of the spot where once was the garden of the Hesperides, seldom now taste bread—but are obliged to rake, with their iron hooks, for a precarious meal, beneath the chestnut tree and the oak. The husbandmen of Holstein, and of most parts of Germany, are still joint tenants, with cattle, of the same roof; and even the cottagers of France are exposed in their comfortless, damp and floorless cabins, to every species of disease and suffering. Nay, England, who pretends to have coined the word comfort for her own exclusive use, still allows, in the midst of all her power, and her opulence, and her vaunted prosperity, a large portion of her laboring subjects to feed on private charity, or to depend for subsistence on public support; thus making the boasted birthright of an Englishman a mere title to "ask, at rich men's doors, a little bread," or to sue to a parish officer for a mess of pottage.

It is not mere treatises, composed in the closet, which can redress these wrongs of Agriculture, or inspire even a wish to improve that art, for the benefit of others, in an oppressed, degraded and spiritless cultivator. All the old errors of husbandry, therefore, still prevail in practice; and even in Great Britain, where most has been written to correct them, "but a very small portion of the cultivated districts is, to this day, submitted to a judicious and well conducted system of husbandry—not, in fact, more than four counties; while many large tracts of excellent soils are managed in a way the most imperfect and disadvantageous." If in that country agricultural improvement be thus confined to theory, it is not surprising that no where, on the continent, it should advance in practice—that, in France, there should still be fallows; and that, there and elsewhere, the milky mother of the herd, while she sustains a family by her munificence, should be ungratefully condemned to draw the plough—that the ox should be every where yoked by the horns; and that the horse, in some places, should be obliged to drag

the plough with his tail—that the scanty crops of upland should still be gathered by the Delecarians, and the almost spontaneous harvests of Andalusia be reaped by the Gallegos—that the Portuguese should never grease the creaking axle of his clumsy wain, nor prefer corn to chestnuts and acorns; or finally, that the Russian peasant should still scratch the earth with his soka and wooden harrow, and despise manure even more than the Jews, who appear indeed to have condescended only to enrich an unseemly metaphor of detestation or contempt.

To insure the practical improvement of Agriculture, a people must be civilized and free.

The lone and defenceless savage will not till or plant the earth, when the fruits of his labor are exposed to the depredations of the first fellow savage stronger than himself, whom chance may lead to his encounter. Both the savage and the slave, indeed, often took upon life itself as a fearful calamity; and sometimes seek to lighten its cares, or to circumscribe its miseries, even by the extinction of their own off-spring.

Civilization and freedom are, indeed, essential to the prosperity of Agriculture. Without civilization, there can be no social security for the husbandman; and without freedom, there can be no competent incentive to his industry.

It was in vain that the modern S miramis of the North, in all her power, allured the Germans, and drove her serfs to settle on the uncultivated wastes of her empire. The blast of despotism still howled through the desert, and there blighted the unsheathed germ of the plant, and palsied the unstrung arm of the cultivator.

Not civilization, however, or even freedom, in its general acceptance, can furnish the strongest moral incentive to the practical perfection of Agriculture.

England and France have, for centuries, been considered highly civilized; and now, compared with Russia, are certainly free—but the equality of man, in both those countries, is at best but an abstract position, and the prejudices and abuses of former ages still partially retain their ascendancy. Mankind still continue, there, to be classed into distinct orders, and thence excited to pursue distinct interests, and to indulge discordant passions. Not only the artificial inequality of political rank, but its necessary concomitant, the excessive inequality of real estate, the twin off-spring of the violence and barbarism of darker ages, are there still left, if they be not acknowledged. If the feudal relation of Baron and vassal do not still exist there in name, many of its evils, in fact, with respect to Agriculture still survive, in the relation of landlord and tenant. The right of soil, both in England and France, is the exclusive inheritance of the few, while the soil itself is cultivated by the many, exposed to all the vexations and exactions, which ignorance and avarice and arrogance may impose on laborious skill and humble and dependent industry. These evils are, even there, seen and deplored by the enlightened friends of Agriculture and humanity; but they can propose no radical cure; they indeed whisper liberality and compassion to deaf and obdurate landlords, and ask them in vain for the prolongation of their leases, and the diminution of their rents.

It is not intended, by the recital of these things, to arouse indignation here, or to excite a spirit of revolution or reform, for the amelioration of other nations; but while they are left "at liberty to manage their own affairs in their own way," we should not be unmindful of our just cause of exultation at the happier lot that has been assigned to us. However ungenerous we may consider our soil, or ungracious our climate—how ever transient we may have hitherto been in availing ourselves, to the full extent, of the physical means actually enjoyed to improve and to extend the great art of Agriculture, we have reason to be proud and to be grateful, that we are denied none of those moral advantages which can excite or assist in carrying that art to its utmost limit and perfection. We yield to none in civilization and freedom; and we excel all in that practical political

equality, and in that tenure and distribution of the soil which furnish the most powerful motives and means to exact of the earth more than enough for our own wants, and, by adding the surplus to the general stock of human subsistence, to add to the number of the human race, and to the aggregate of human happiness.

The Yeoman of the county of Worcester is the alodial proprietor of the farm which he cultivates, and the acknowledged peer of the proudest member of this community. He walks erect in the elevated consciousness of his own dignity and independence—he attorns to no superior; but feels himself equally aloof from the impertinent intrusions of the steward of a landlord, and the arbitrary requisitions of the tool of a despot.

Aware that his own interests are identified with the interests of his country, and that in promoting either he necessarily advances both, with him self-love and patriotism must be essentially the same.—In deciding, therefore, on the conflicting claims of other classes of society, however respectable and useful may be the parties, they ought respectively to be preferred as they contribute most to the prosperity of agriculture, which is equivalent to the general prosperity of this republic.

The sport of no fantastical philosophy or fanatical delusion, the cultivator of the soil does not, alternatively, become a tame and unresisting victim to the active and interested hostility of others, or a desperate crusader against their abstract and harmless opinions; but he is always ready, at the constitutional call of his country, to beat his ploughshare into a sword, or his sword into a ploughshare, as her safety and her honour may require.

Directly and particularly charged as he is with her great paramount concern, and bound as he must be by every consideration, selfish or social, sacredly to guard that trust he would be guilty of treason against himself and against his country, were he voluntarily to divest himself of his immediate control over it, and commit the rights and the welfare of agriculture to the safe keeping of the comparatively few, whose feelings and views are not necessarily in unison with its prosperity, and who would naturally exercise the power thus acquired for the special promotion of their own peculiar interests.

If there be moral causes peculiarly favorable to the perfection of agriculture, there is, in return, much in agriculture peculiarly favorable, not to the physical and civil well being of man only, but to his moral improvement and excellence.

The pure air of the country, and the masculine labours of the field, contribute, indeed, to develop his animal proportions, and to invigorate his organic and muscular force—to preserve his health, and to prolong his life; but the opportunity afforded, by his rural situation and occupations, for the continual contemplation of the wonderful economy of nature, tends to elevate and to refine, to expand and to harmonize all the faculties of his mind. The august spectacle every where before him, chastens while it sustains his pride, and awakens at once all his kindred kindness and charity towards his fellow men, and all his reverential awe and devotion towards the divinity.

If agriculture thus aids and embellishes and purifies next to religion, this brief and fleeting being, how meritorious is it not, in this Society, to endeavor to increase and to direct its means for such useful and noble ends.

To annually assemble here, with the first fruits of his ingenuity and industry—to excite, by their exhibition, the emulation of his fellow laborers—and thus, in the most acceptable manner, to offer them to Him “who giveth the increase,” may well qualify every worthy member of this Society not only to cherish the delightful consciousness of being the best friend of his country, and the most efficient benefactor of the human race—but to hope, that, for thus improving the talent confided to him, he may receive the assurance of a higher and more lasting reward, in the approving sentence—“Well done, thou good and faithful servant.”

Agricultural Society of the Valley— Virginia.

At a meeting of the above Society, on Monday, the 31st of December, 1821, pursuant to notice, the following objects of the meeting, being first explained by Judge Holmes. The Society proceeded to the election of the following officers, to wit:

HUGH HOLMES, President.
NATH'L BURWELL, Vice President.
EDWARD M'GUIRE, Treasurer.
THOMAS CRAMER, Secretary.

The Society resolved to confine their attention, for the present, more especially to the following

OBJECTS.

1. The cultivation to most advantage of the great staple of the Valley, *Wheat* for market.
2. The *Grazing System* associated with the cultivation of grain;—how far they interfere, so as to lessen or increase the interest of the farmer.
3. The *Family of Grasses*, how far they are best associated, as it regards contemporaneous bloom and ripening, for the purpose of grazing, soiling, or making hay.
4. The different tribes of roots, *Turnips, Potatoes, Mangle Wurtzel, Jerusalem Artichokes, &c.* how far, as auxiliaries of food, they are profitable.
5. Whether grinding and reserving the offal of our wheat is not preferable, in point of interest, to selling it in gross to the merchant or miller.
6. The *Improvement of Animals*, for the saddle or draught, as also those for food or raiment.
7. *Implements of Husbandry*, the best mode of using them, their care and preservation.
8. *Farm Buildings*, fences, roads, dry bridges, timber, fuel, &c.
9. *Reports on Practical Experiments*, whether successful or otherwise—the detection or removal of error, while it teaches us to avoid its repetition, may be recorded (without a solecism in terms) in agricultural pursuits, as a useful blunder.
10. The *Economy and distribution of Labor* on a farm of given size;—calenders of work, embracing the number of hands, horses, oxen, &c. engaged in any particular work every day in the year; rotation of crops on different soils, and their amelioration by manures, plaster, green dressings, &c.
11. And, finally, such other subjects connected with husbandry and the arts, not before enumerated, as the society may hereafter think proper to embrace.

The Society shall meet semi-annually at Winchester, on the 1st day of the Frederick March Court and August Court in each year; at least thirteen members shall be necessary, including the presiding officer, to form a quorum to proceed to business; but if, from any cause, that number do not attend on the first day of the meeting, three members may adjourn the meeting from day to day not exceeding three days.

The officers are to be elected annually at the Frederick March Court meeting, and to serve one year, and until successors shall be chosen; and in case of vacancy by death, resignation, or otherwise, the same may be filled by a new election; the person thus chosen to serve the remainder of the year.

Since the following report was made, the stockholders of the Canal, held a meeting, and resolved to open subscription books to receive new subscriptions to the amount of \$600,000, and to collect the \$200,000 out-standing.

CHESAPEAKE & DELAWARE CANAL.

At a numerous and very respectable meeting of the citizens of Philadelphia, held this day, at the Merchant's Coffee House, the following

report of the committee, appointed at a former meeting, on the 11th Sept. last, was read, accepted, and ordered to be published.

SAMUEL BRICK, Chairman.

W. MERRITH, Secretary.

Friday, February 8th, 1822.

REPORT

On the subject of the Chesapeake and Delaware Canal.

FEBRUARY, 6th, 1822.

The committee appointed at a meeting of citizens, held at Judd's Hotel, on the 4th day of September last, on the subject of the Chesapeake and Delaware Canal,

REPORT

That they have collected all the laws passed by the states of Maryland, Delaware and Pennsylvania, to incorporate the Chesapeake and Delaware Canal Company, and the supplements thereto. In the law of the state of Delaware, there were discovered some provisions, fixing rates of toll, and reserving to that state a percentage on the annual profits, which, tho' they were rendered less objectionable, by a supplement passed on the 5th of Feb. 1822, seemed still to interpose very serious obstacles. For the purpose of having them removed, memorials to the legislature of that state, then in session at Dover, were prepared by the committee, and two of their number were deputed to present them. On their arrival there, it was discovered that the obnoxious provisions had been repealed, and that the best disposition existed among the members, to promote the important work to which these laws have relation.

Notwithstanding the primary object of the visit was found to have been already accomplished, your committee think that the trouble of the journey was more than compensated, by the opportunity it afforded of removing by explanation, some prejudices and misconceptions, which existed in the minds of a few of the members of the legislature.

Your committee are not aware that there is any thing in the laws of the several states in their present shape, which requires alteration or amendment; at least antecedently to the re-commencement of operations by the company.

Your committee have also individually and by sub-committees, endeavoured to obtain information of the progress made by the company in executing the work; of the causes which produced its suspension; of the present condition of their affairs, and of its practicability and probable usefulness to the nation, and of the citizens immediately connected with it, as well as of the advantages it promises to the stockholders. For these purposes, and to collect and compare the information obtained, your committee have held meetings from week to week since their appointment; and have derived from a pamphlet recently published by Mr. Joshua Gilpin, much information of the most interesting kind; a part of which it is only deemed necessary to lay before you in this report. The book itself is calculated to instruct and persuade, all those who take an interest in the canal, both by the authenticity of

its occurrence, and the manner in which they are explained. The opinions of the author with regard to the route of the canal, will of course, have their merits tested by future surveys: your committee, however, have learned nothing which could justify them in doubting the general correctness of Mr. Gilpin's statements.

In the course of their investigation, your committee have found cause to applaud the zeal and diligence of the former board of managers. They speak, however, only in reference to their disinterested efforts in forwarding the great work committed to their charge. They will not presume to give an opinion upon the plans which those managers may have adopted in relation to the course of the canal, or the waters intended to be used as feeders; those topics, as already hinted, should be left, as your committee believe, to the decision of the present board of managers, in full confidence that they will be guided by the result of careful surveys, and an honest desire to benefit both the public and the stockholders.

The original subscriptions to this stock are as follows:

In Pennsylvania, chiefly in Philadelphia,	824 shares by 429 subscribers,
In Delaware	712 do. do. 247 do.
In Maryland	256 do. do. 54 do.
	1792 730

Of these Pennsylvania has paid	\$73,400
Maryland about	18,300
Delaware	11,300

Total \$103,000

Leaving due upon the instalments called for:	\$9,100
From Pennsylvania	7,300
From Maryland	7,000
From Delaware	59,900

Total \$76,300

There have been received from the stockholders about	103,000
And expended altogether	122,000
Leaving the company in debt	19,000

The capital subscribed (1762 shares at 200 dollars)	\$353,400
Of which there has been received	103,000

Leaving due from the stockholders 255,400

Of these 255,400 dollars, it is presumed that 200,000 will be collected: and it is computed, that an additional subscription of 600,000 dollars would finish the work. These two items, added to the 103,000 dollars already expended, would make a grand total of about 900,000 dollars—the interest of which, at 6 per cent. would be

Annual repairs, and attendance on the locks, &c.	\$34,000
	16,000

Total \$70,000

40,000 tons of goods, it is supposed are now annually transported across the Peninsula, at a freight of 40,000 dollars. When the trade of the Susquehanna is added to the new traffic which will be created by the facility of a water conveyance, the increased tonnage

must ensure to the stockholders large dividends.

The legislature of Pennsylvania directed the governor, by a law of the 25th March, 1813, to draw his warrant on the treasury for 75,000 dollars (the par value of 375 shares,) whenever the United States shall have subscribed 750 shares, in Maryland 250 shares, and Delaware one hundred shares.

The board of Managers has been re-organized by an election held at Wilmington on the 28th ult. and is to hold its future meetings in this city.

Upon the whole, your committee have been confirmed in the belief that the canal is of the greatest consequence to the nation, and promises incalculable benefits to the inhabitants of the states and cities more immediately connected with it: perfectly satisfied too of its easy practicability, and at an expense bearing no proportion to the advantage it will yield to the public, and profit it will afford to the stockholders, beg leave earnestly to recommend it to the countenance and support of their fellow-citizens, so that the means may be promptly afforded to the board of completing the work without delay. As it is a work in which the prosperity of Philadelphia is deeply involved, your committee believe they make this appeal with confidence, and that it will be met with a liberality proportioned to its usefulness and magnitude, and consistently with the spirit for public improvement and patriotism, in which the committee venture to affirm our citizens never have been, and to hope they never will be, outstripped by those of any of our sister cities or states.

In conclusion we invite you to contemplate the probable bearing which this work, associated with those already in progress, will have on the future fortunes of Philadelphia.

The Schuylkill and Lehigh open already the vast mines of coal which lay at their sources, and convey to your doors, at a cheap and expeditious rate, the rich products of the districts through which they flow; the waters of the Susquehanna, about to be connected by the means of the Union Canal, with those of the Schuylkill, will furnish an easy, and secure road to your market for that great agricultural territory; a descending navigation to the tide waters of the Chesapeake, with a convenient passage into the Delaware, will afford an opportunity for the boatmen to return home, not on foot as at present, but by the Schuylkill and Tolpehocken rivers, on board their boats, with the proceeds of their sales, invested in your city, instead of other markets as is now done. The construction of the Chesapeake and Delaware Canal, will complete this chain of inland navigation. It is for Philadelphia to furnish such means as shall enable the managers to resume their labors and accomplish their end, and by consequence to co-operate with the works of a similar kind now in hand, in securing to our city forever a rank for wealth, population, commerce, manufactures, and general comfort, inferior to no other in the nation.

All which is respectfully submitted,
SAMUEL BRECK,
MATHEW CAREY,

THOMAS P. COPE,
JAMES C. FISHER,
PAUL BECK, Jr.
STEPHEN GIRARD,
WILLIAM MEREDITH,
SAMUEL ARCHER,
WILLIAM LEHMAN,
SIMON GRATZ.

Albemarle Co. (Va.) Dec. 15th, 1821.

MR. SKINNER,

Dear Sir—In the 56th No. of the American Farmer, I find you have given to the public the notes I furnished you, "On the cultivation and management of Tobacco, as practised in this and the adjacent counties of Virginia." These notes, were the result of much enquiry among the intelligent planters of my acquaintance, and are to be considered more as a collection and collation of the experience of others, than my own on the subject. I find however that in the hurry of embodying, the various information I had collected, some omissions occurred, that are important, which I shall now give you, and if you think them worthy of the public eye, you may publish them as a sort of appendix to the notes. The introductory notice you have taken of the essay in question, claims my acknowledgements; but I am disposed to think it is more flattering and complimentary than either the subject, or the writer deserves.

Your friend, &c.

PETER MINOR.

FOR THE AMERICAN FARMER.

Of rearing Tobacco Plants.

A great scarcity of original land, suitable for raising Tobacco plants, beginning to prevail in the Tobacco region, the difficulty of obtaining such spots, has induced the planters of late years to turn their attention to the construction of artificial and permanent beds.—This is a matter of the first importance, and worthy of great attention. An intelligent friend, and judicious planter, to whom I was indebted for much of the practical detail of the notes, suggests the following as the best mode of making and preserving an artificial bed.—Choose a piece of ground at the foot of a hill fronting to the east or south east, and so situated with respect to water, that a small stream may be trained along the upper margin of it. If the soil is unfit for raising plants, (which I have before described as a rich loam, with a slight mixture of sand,) cart proper soil from some other place and cover the ground 6 or 8 inches thick with it. Make a low wall of stone, along the ends and lower side of the bed to keep this soil in its place. Then burn the ground and manage it in every respect as in the case of a new bed. By the aid of the water for irrigation and the eastern exposure, the plants will most generally be insured in good time. After the planting season is over, weed the bed clean, and destroy every species of vegetation upon it, and cover the whole surface with litter from the stable after the manner we do asparagus beds in winter, or winn half rotted wheat straw so thick as to prevent all

vegetation from springing up through it. Let it remain thus covered until the next winter, when the time for burning and sowing arrives, when the litter or straw is to be removed very clean, and may be made to enrich some other ground, and the spot burnt and treated as heretofore directed. After the first year, the burning may not be so heavy. I have no doubt but a bed constructed and treated in this manner, will produce good plants for many years. Perhaps it may become tired or sick of plants, from the want of some rotation, or from too great an accumulation of charcoal on its surface, in which case it will be easy to remove the earth and substitute fresh soil in its place.

Of raising Tobacco on old land.

Some planters in Albemarle, particularly about the Green Mountain, a region celebrated for raising Tobacco of the first quality, have ascertained that their old land, which had been once exhausted, but made rich again by the use of clover and plaster, will produce as good Tobacco in every respect, as that raised on their best new or fresh land. This is considered by the planters among the most important advantages they at all derive from the introduction of plaster, for a very small portion of first rate land for Tobacco, now remains to be cleared. An eminent planter from the neighbourhood I have mentioned, describes the following, as the process he pursues, on such land with great success. Supposing the ground to be well set with clover, do not suffer it to be grazed after hay-harvest, that a good coat may accumulate for turning in. In October or November, plaster the land at the rate of one bushel per acre, and fallow it as deep and as well as a good horse plough will effect it. In February or March, take advantage of an open spell of weather, and plough it again with two horses, first strewing another bushel of plaster per acre. This ploughing besides completely pulverizing the earth, and diffusing the decomposed vegetable matter, exposes the cut worm (now in a chrysalis state) to be destroyed by the succeeding cold weather. From this time, until it is to be killed, the ground may be kept light and clear with harrows, when a third ploughing, and a third plastering of one bushel per acre is given, and the crop then cultivated in the usual way.

I highly approve the hint of your correspondent, T. A. of sowing corn, and turning in Hogs at the periods of the different ploughings of old land, and shall avail myself of his advice this spring in an experiment I am making upon clover land.

Of Priming and Topping.

A practice has prevailed to some extent for several years, and is constantly becoming more common, of not priming or pulling off any of the bottom leaves of tobacco, when the plant is to be topped. Some good reasons, I think, are given for this innovation upon the old practice. In the first place, the pulling off these leaves, makes many wounds, which are thought to produce a temporary check in the growth of the plant. But the leaves if left, gradually moulder away, and drop off without absorbing

much sap from the plant, and protect those above them, from decay and dirt, and this practice is said to have the effect to lessen, in a great degree, the protrusion of suckers from the root. The topping can certainly be done more expeditiously, though I presume at first, it would require more care and attention, as the required number of leaves are to be left exclusive of those, which in the common way, would be primed off. I cannot speak at all from experience, about this method—but I think it is worthy of trial.

Of curing by Fire.

An improved method of firing tobacco, particularly as it respects the diminution of risk and the economy of fuel, has begun to be adopted by some judicious planters, in this part of the country. This is, to make the fire on the outside, say, from 12 to 20 feet from the house, and to convey the heat by a regular flue built of stone or brick, going under ground and opening in the middle of the house. Two of these flues one on each side, are sufficient for a house of 20 feet square or more. The fire is made in the mouth of this flue, on the outside, after the manner of burning a brick kiln. By the draft of air, which goes constantly to support this fire, all the heat is carried into the house, without any of the risk or danger, which attends the common mode. The house should be made tight and close, as indeed every house should be, that is at all used for firing.

Of the construction of Tobacco Houses.

A little more expence and attention than is commonly given to the plan and construction of our Tobacco Houses, would, I think, greatly diminish the labor and trouble of the planter, and facilitate every operation attending tobacco, after it comes into the house. As they are generally constructed at present, the roofs are so slight and insecure as often to permit leaks during hard rains; thereby greatly injuring the tobacco, while it hangs up; while the body of the house is so open, that tobacco taken down and bulked away for stripping or prizing, often gets completely dry by the piercing winds of the spring notwithstanding all the precaution of covering used to prevent it. It has been the reproach of Virginians abroad, that their dwelling houses were generally too costly and extravagant, while their negro cabins, their barns, their tobacco houses and stables, scarcely deserved the name bestowed on them. There is much truth in the charge, and if nothing else will do, let our interest dictate an effort to wipe it off. A single trial, I am sure, would convince any planter of its expediency, and exhibit, even in building tobacco houses, a verification of Mr. Burke's political maxim, "that the road to economy lays through expenditure."

I will close these remarks, by recommending to every planter, to have, at least one house, which may be called the packing and prizing house, constructed somewhat after this manner. Build it near the foot of a hill which shall somewhat screen it from the piercing north-west winds. Let it be 20 feet square and two stories high, the first story of stone 8 feet pitch; one side of the house to be partly below the

ground according to the declivity of the hill.—The second story of frame work, having sills, with corner posts and braces only, and enclosed with plank nailed on perpendicularly and the roof covered with shingles. The lower story is to be used chiefly for stripping and packing, and in order to be well fixed for this, construct two garners one on each side the centre door, 4 feet high, 6 feet wide and the whole length of the house. This will leave a passage 8 feet by 20, which is ample room to strip in. A cheap stove could be fixed in this passage for the comfort of the strippers in cold weather. Let the garners be raised one foot from the ground, and made air tight, by using well seasoned plank tongued and grooved. In these garners pack the Tobacco, as it comes in order for prizing—and have a covering made in sections like batten doors, that will just fall within the garner and exactly fill the whole space. Weigh this covering well with stone and lay clean blade fodder, thickly over the whole. In this way the Tobacco, will be perfectly secure, and undergo no change until it is time to prize it. The prizes may be fixed at the side of the house, under a shed.



TO THE EDITOR OF THE AMERICAN FARMER.

Information Wanted.

BARNWELL DISTRICT, Duncansville, 1st Feb. 1822.

Dear Sir,

In a little notice I have lately seen published by Mr. Gillet, of Northampton, Mass Nov. 29th, addressed to Thomas Shepherd, esq. Chairman of the Committee on Manufactures, for the Northampton Agricultural Society, purporting that Sea Island Cotton seed is valuable in a two-fold degree—first, for making oil; the residue of the seed valuable for feeding stock—the object of this communication, is to request, through the medium of your valuable paper, that Mr. Gillet, or any other gentleman who is acquainted with the process of extracting oil, &c from cotton seed, will give such information as they may be in possession of. I presume there must necessarily be a mill, or some machine to grind the seed, &c. but no doubt, the goodness of the gentleman will furnish a particular account, fully elucidating every part of the process, which information will be thankfully received, and at the same time oblige many South Carolinians: if it will not be requesting too much, a cut, representing the machinery, &c. and the cost of the same, would add greatly to the above information.

I am Dear Sir, yours very respectfully &c.
W. R. BULL.

JOHN S. SKINNER.

* It shall be given if we can be furnished with the drawing.

From the London Farmer's Journal.

The following account of Newstead Abbey, the famous seat of Lord Byron, is taken from the *Kaleidoscope*, a small weekly miscellany published in Liverpool:—

TO THE EDITOR.

SIR,—The front of the abbey is one of the most beautiful and chaste specimens of Gothic architecture in the Kingdom, and in the open court before it, the only object for years has been a fountain, discharging its waters from an antique structure of stone, ornamented with a grotesque assemblage of bours, beasts, lions, &c. This, I know, it was in contemplation by the present proprietor, Major Toldman, to remove, and I believe it is now done. The abbey he is restoring.

ing in a style of richly classical and appropriate magnificence. Having lived several years in the neighbourhood, the place is familiar to me. The last time I visited it was soon after it was sold; and only two domestics remained to superintend the removal of the furniture.

The embellishments which the abbey had received from his Lordship, had more of the brilliant conception of the poet in them than of the sober calculations of common life. I passed through many rooms which he had superbly furnished, but over which he had permitted so wretched a roof to remain, that in about half a dozen years the rain had visited his proudest chambers; the paper had rotted on the walls, and fell, in comfortable sheets, upon glowing carpets and canopies, upon beds of crimson and gold, clogging the wings of glittering eagles, and destroying gorgeous coronets. From many rooms the furniture was gone. In the entrance-hall alone remained the paintings of his old friends, the dog and the bear. The long and gloomy gallery, which, whoever views, will be strongly reminded of Lara, as indeed a survey of this place will awaken more than one scene in that poem, has not yet relinquished the sombre pictures "of its ancient race." In the study, which is a small chamber overlooking the garden, the books were packed up, but there remained a sofa, over which hung a sword in a gilt sheath, and at the end of the room, opposite the window, stood a pair of light fancy stands, each supporting a couple of the most perfect and finely polished skulls I ever saw; most probably selected, along with the far-famed one converted into a drinking cup, and inscribed with some well known lines, from amongst a vast number taken from the burial ground of the abbey, and piled up in the form of a mausoleum, but since recommitted to the ground. Between them hung a gilt crucifix.

In one corner of the servants' hall lay a stone coffin, in which were fencing gloves and foils; and on the wall of the ample but cheerless kitchen was painted in large letters, "Waste not, want not."

During a great part of his Lordship's minority, the abbey was in the occupation of Lord G—, his hounds, and divers colonies of jackdaws, swallows, and starlings. The internal traces of this Goth were swept away, but without, all appeared as rude and unclaimed as he could have left it. I must confess, that if I was astonished at the heterogeneous mixture of splendour and ruin within, I was more so at the perfect uniformity of wildness throughout. I never had been able to conceive poetic genius in its domestic bower, without figuring it diffusing the polish of its delicate taste on every thing around it; but here that elegant spirit and beauty seemed to have dwelt, but not to have been caressed—it was the spirit of the wilderness. The gardens were exactly as their late owner described them in his earliest lays—

"Thro' thy battlements, Newstead, the hollow winds whistle;

"Thou the hall of my fathers art gone to decay;
"In thy once smiling gardens the hemlock and thistle
"Now choke up the rose that late bloom'd in the way."

With the exception of the dog's tomb, a conspicuous and elegant object, placed on an ascent of several steps, crowned with a lambent flame, and panelled with white marble tablets, of which, that containing the celebrated epitaph mentioned removed, I do not recollect the slightest trace of culture or improvement. The late Lord, a stern and desperate character, who is never mentioned by the neighbouring peasants without a significant shake of the head, might have returned and recognized every thing about him, except perchance an additional crop of weeds. There still gloomily slept that old pond, into which he is said to have hurled his lady in one of his fits of fury, whence she was rescued by the gardener, a courageous blade, who was the lord's master, and chastised him for his barbarity. There still, at the end of the garden, in a grove of oak, two towering satyrs lie with his goat and club, and Mrs Satyr with her chubby-cloven-footed brat, placed on pedestals at

the intersections of the narrow and gloomy pathways, struck for a moment, with their grim visages, and silent shaggy forms, the fear into your bosoms which is felt by the neighbouring peasantry at "the wild lord's devils."

In the lake before the abbey, the artificial rock, which he filled at a vast expense, still reared its lofty head: but the frigate, which fulfilled old mother Shipton's prophecy, by sailing over dry land from a distant part to this place, had long vanished, and the only relics of his naval whim were the rock, his ship buoys, and the venerable old Murray, who accompanied me round the premises. The dark haughty impetuous spirit and mad deeds of this Nobleman, the poet's uncle, I feel little doubt, by making a vivid and indelible impression on his youthful fancy, furnished some of the principal materials for the formation of his Lordship's favourite, and perpetually recurring, poetical hero. His manners and acts are the theme of many a winter evening in that neighbourhood. In one of his paroxysms of wrath he shot his coachman for giving, in his opinion, an improper precedence; threw the corpse into the carriage to his lady, mounted, and drove himself. For this he was tried by the Peers, and acquitted for want of evidence. In a quarrel, which arose out of a dispute between their gamekeepers, he killed his neighbour. Mr. Charnock, the lord of the adjoining manor—With that unhappy deed, however, died all family feud; and, if we are to believe our noble bard, the dearest purpose of his heart would have been compassed could he have united the two races by an union with "the sole remnant of this ancient house," the present most amiable Mrs. Charnock the Mary of his poetry. To those that have any knowledge of the two families, nothing is more perspicuous in his lays than the deep interest with which he has again and again turned to this boyish, his first most endearing attachment. The "dream" is literally their mutual history. The "antique oratorio," where stood "his steed caparisoned," and the hill

"—crowned with a peculiar diadem
"Of trees in circular array, so fixed,
"Not by the sport of nature, but of man,"
are pictures too well known to those who have seen them to be mistaken for a moment.

It is curious to observe the opinions entertained by country people, of celebrated literary characters, living at times amongst them. I have frequently asked such persons near Newstead what sort of man his Lordship was? The impression of his energetic but eccentric character was obvious in their reply, "He's the—of one fellow for comical fancies. He flogs the—lord to nothing; but he's a hearty good fellow for a' that." One of these mere comical fancies, related by a farmer, who has seen it more than once, is truly Byronic:—He would sometimes get into the boat with his two noble Newfoundland dogs, row into the middle of the lake, then dropping the oars, tumble over into the water; the faithful animals would immediately follow, seize him by the coat collar, one on each side, and bear him away to land. Dogs tutored in this manner are invaluable, because they may be relied upon in cases of actual danger.

W. H.

Henley, September 23.

* Query—Chaworth.

Extracts from an Address

To the citizens of Edinburgh, and to the inhabitants of North Britain in general, on his Majesty's expected visit to Scotland.

By the Right Hon. Sir James Sinclair, Bart.

"The Muse,
High hovering o'er the broad cerulean scene,
Scots Caledonia, in romantic view;
Her airy mountains, from the waving maiz,

Invested with a keen effusive sky,
Breathing the soul acute"
THOMSON, (Autumn, line 876.)

We have every reason to hope, that in the course of the ensuing summer or autumn, his majesty will honour his Scottish dominions with his presence.

It is not to be imagined, unless prevented by some unlooked-for circumstance, that his majesty will fail to visit Scotland in the course of the ensuing year; and this may be more confidently relied on, as his Scottish subjects have many just claims to his majesty's favourable attention. The Scottish Throne is, perhaps, the most ancient in Europe; and it is in consequence of his majesty's connection with the Scottish House of Stuart, and its alliance with the English House of Tudor, that he inherits the British Crown. While other countries may boast of a more fertile territory, a more genial climate, and may possess a more numerous population, there is none, where the cultivated soil produces in more abundance, or where the people in general are more usefully and more profitably employed. The features of the country are picturesque and magnificent; while the people who inhabit it are entitled to respect, from their military and naval achievements—their great industry—their scientific acquisitions—and their strict attention to morality and religion.

On the supposition that his majesty will visit Scotland in the course of the ensuing summer or autumn, it is of much importance for the people of this country to consider in what manner they can give a proper reception to their Sovereign.

There are some points deserving of immediate attention, in regard to which, I trust, all true Scotchmen will concur in opinion.

The first is, to render the ancient palace of the Kings of Scotland a fit place for the reception of the Sovereign and his Court, and to improve the access to it. To accomplish these objects, the plan for the improvement of Holyrood House, drawn up by the late Mr. Adam ought to be immediately set about; and the interior of the rooms fitted up, so as to suit a Royal Residence. The ancient Chapel there ought likewise to be repaired, that the Knights of the Thistle may be installed, in that place, with due solemnity. Such other buildings, also, ought to be commenced, and, if possible, completed, as are calculated to ornament a metropolis, the situation of which is so peculiarly picturesque and beautiful. For instance, the erection of The Pantheon, on the Calton-hill, which has so long been anxiously wished for, by those who are desirous to perpetuate, by so noble a monument, the fame of those military and naval heroes who have been born in Scotland. It would seem, indeed, as if the commencement of this favourite national object were reserved for the presence of the Sovereign in this country, and to immortalize the epoch of his majesty's visit to it.

In his visit to Scotland, his majesty will not be surrounded with those dignitaries of the church, to which he has been accustomed in England and in Ireland; but it would be proper that a General Assembly of the Church of Scotland (the only Ecclesiastical Parliament now extant,) were to be held upon the occasion, that his majesty might be more fully impressed with the nature and constitution of the Presbyterian establishment, where the members of the church make up of disparity of rank, by the opportunity they have, of exercising their talents, in the progressive judicatures of the church; and where the only distinction arises from superior merit and virtue.

The City of Edinburgh has been called the modern Athens. Its situation is, in some respects, similar to the ancient metropolis of Attica; and in its devotion to literature, it bears a great resemblance to that celebrated city. His majesty will naturally wish to examine all the particulars connected with this empori-

um of science, in which so great a number of individuals, are instructed in a knowledge of medicine, in ancient and modern languages, and in every species of art and science distinguished for its utility.* Few of those celebrated characters, who once adorned the literary circles of Edinburgh, now exist; but we have still to boast of some remnants of the old stock, a Dugald Stewart, and a Henry Mackenzie, and likewise some more modern authors of distinguished celebrity.

There is no country, perhaps, where agriculture and gardening are carried to greater perfection than in Scotland. The instruments of husbandry are so simple and efficient, and the whole system so easily understood, that the prediction of the late President of the Royal Society, (Sir Joseph Banks,) is likely to be verified, "That agriculture will owe more to the Scots, than to any other nation, since Adam first wielded the spade." A ploughing match, on an extensive scale, would be an interesting spectacle for the Sovereign to witness.

The art of roadmaking has also been carried to great perfection in Scotland; and it is to be hoped that the roads over which his Majesty will probably travel, will be repaired previous to his majesty's arrival in Scotland, on the principles of Macadam. The streets of Edinburgh, also, will require much attention and improvement.

The perfection to which various manufactures have been brought in Glasgow and its vicinity, and the beauty of the fabrics wrought in that neighbourhood, must excite the admiration of every beholder; and to these, the Royal Visitor will naturally direct his attention.

In regard to other objects of useful inquiry, the Sovereign will have an opportunity of investigating in Scotland, with peculiar advantage, some of the most important branches of political economy; in particular—the system of parochial education, and its effects the management of the poor—the laws for the inclosing of land, and the division of property held in common—and other branches, on which depend the substantial interests of a nation. In no other country, also, have inquiries of a statistical nature been carried to such an extent, for accounts have been drawn up, not only of every parish, and of every county in the kingdom, but a general view of the state of the country at large has been published, accompanied by tables, containing statements of every particular, with which a Sovereign, or a Minister of State, would wish to be made acquainted.

There is no country, therefore, where a mind, anxious for the attainment of useful knowledge, could acquire more valuable information, than in Scotland. Yet, on such an occasion, objects of a more amusing, but less important description, are not to be disregarded.

It may be proper to consult the ancient records of the City of Edinburgh, in order to ascertain in what manner the Kings of Scotland were formerly received on their first arrival in that metropolis; and to renew, so far as modern manners will admit of it, the same style of reception.

Besides modern races, exclusively confined to one object, it would be desirable, to add to them, exhibitions of some of those gymnastic exercises for which Scotland was formerly celebrated. A Musical Festival, also, in which Scottish music should have its full share, should not be omitted.

It would be gratifying, on particular occasions, to see his majesty and his Scottish subjects, attired in the ancient garb of the country. Indeed, nothing would have a more striking effect on the mind of a stranger, than to witness the Highland dress—the Highland music—and the Highland dances revived.

* It would be right, that in one great procession, all the teachers and educating individuals in Edinburgh should pass in review before his majesty. It would be a new and most interesting spectacle.

† The Highland Ball, given in the Assembly Rooms of Edinburgh last spring, is acknowledged to have been one of the most delightful and brilliant spectacles that has ever been exhibited.

so as to represent to the eye, the manners and customs of ancient times. To see a hundred Chiefs, and Highland Lairds, attended by the elite of their respective clans each wearing the peculiar tartan or "set" of his tribe, would be a sight which could only be seen in Scotland.

His majesty may also partake, amidst the scenery of the Grampian Mountains, the amusements of the chase, as enjoyed by his ancestors, of which so striking a description is given in the ancient histories of Scotland.

The object of a Sovereign, however, in visiting the more distant parts of his dominions, is not amusement merely, or the exhibition of shews of pageantry (though these public testimonies of respect and affection are not without their use,) but his real gratification must arise from the exercise of his mental powers—from the acquirement of new information—from his uniting his subjects, by conciliating religious or political animosities, which has been so happily accomplished by his majesty in Ireland, and above all, from the means with which he is thus furnished, of ascertaining, how he can best ameliorate the condition, and augment the happiness, of his people.

On the whole, there can be no doubt, that the proposed visit of his majesty will prove highly gratifying, both to him and to his subjects in Scotland, and may eventually prove the source of important benefits to the northern part of his dominions; and, for that purpose, it would be desirable that preparations for his reception were made early, so as to be done in a manner likely to be acceptable to his majesty, and creditable to his Scottish subjects.

To contribute to so important an object, the preceding hints are thrown hastily together.

JOHN SINCLAIR.

133, George-street, Edinburgh, Nov. 12, 1821.

N. B. It appears from the account of the Crown revenues of Scotland, printed by order of the House of Commons, 26th June, 1821, that these revenues amount to 77,000l. per annum, and that the charges on them are only 59,000l. leaving a surplus of 18,000l. per annum, three years of which, or 50,000l. in all, ought at least to be appropriated for the expences of his majesty's journey to Scotland, in order to render it as magnificent and beneficial as it ought to be.

* More especially in Lindsay of Pitscottie's History.

FOR THE AMERICAN FARMER.

CARROT CROP may be successfully cultivated in Maryland.

ANNAPOLIS 8th February, 1822.

DEAR SIR,

Finding that the carrot crop, has not been thought unworthy of the particular attention of the Agricultural Society of Maryland, I take the liberty, to give you the result of an experiment made in the last year, in Worcester County, Maryland, with the view to ascertain, if they were worth raising, as food for milch cows, and ewes with young lambs. You are aware, that an abundance of succulent food, is always desirable for both—the turnip, even of the most approved species bears no comparison with the long orange carrot in point of nutritious matter.

A piece of ground, thirty-six by forty-eight feet, was twice ploughed, jugged, and then had the clods broken in pieces with a hoe. Desirous to perform all the work myself, after the ground was prepared to receive the seed, I laid it off by lines across the plot, two feet asunder. Small trenches were afterwards made, and seeding commenced. But really, the labor of scattering the seed carefully in the

drill, was so fatiguing, that I abandoned it, and proceeded to drop them in the ground, previously marked at the original distance one way, and about six inches the other. The view, in the latter mode of sowing, was to place three to four seeds in each place, they are however so difficult of management in the wind, being armed with spiculae which serve as wings to them, that little certainty prevailed in that respect. This done, my crop soon appeared, and with it an innumerable host of weeds.—As soon as the carrots were well up, and of sufficient size to discriminate with certainty between them and their neighbors, I proceeded to pick out the weeds, and work them over with the hoe. A second operation of this sort, taking out superfluous plants, as well as weeds, and working again with the hoe, completed the tith. In a part of the ground you will recollect, they were drilled. In succoring or singling, I intended to leave the plants, three inches asunder, but, believe they were frequently nearer and almost never beyond that distance. In the rest of the ground two and three were left in a place. The drills produced in proportion to extent, as much in bulk, or weight perhaps, as the other mode; the roots however, were neither so long large, nor fair. The result of my experiment was a crop of forty five bushels, after the consumption of the family, until it was taken up in December. If this yield is worthy of notice by those who are disposed to cultivate the carrot, you can use this communication accordingly.—I am yours respectfully, J. S. SPENCE.

P. S. No manure was used. I am convinced that I could raise, with my experience of the last year, a larger quantity, from the same ground. I will barely add that it is necessary to work the earth well, and to as great depth as practicable. It is absolutely necessary to avoid whilst the plants are small, throwing any earth into the bud, as it will certainly cause the root to branch, and become, short, hard and knotty.

We are glad to be thus supplied, on authority so satisfactory, with proof of the capacity of our soil and suitableness of our climate in Maryland, to produce this valuable crop, on a scale not inferior to the most successful cultivators of it in other parts of the union—for certain it is, that we have hitherto universally neglected a resource, on which the most exemplary farmers of the eastern states very much rely for the support of their stock. The experiment here detailed, communicating both the mode and the result, should lead others to follow the good example—of the suitableness and value of both the carrot and mangel-wurtzel, for feeding milch cows and ewes having lambs, there can be no doubt; in illustration thereof, we submit a communication from the last number of the London Farmer's Journal, which, as well as the Farmer's Magazine of Edinburgh, we regularly receive in exchange for this work.

Editor Am. Farmer.

To the Editor of the Farmer's Journal.

On Feeding Ewes with Mangle Wurtzel.

HERFORDSHIRE, Dec. 12, 1821.

Sir,—As I consider it to be the duty of every individual connected with the agricultural in-

terest to communicate to the public the result of satisfactory and beneficial experiments, I will briefly answer the several queries of M. W. in your journal of this week.

From the principal part of my turnip crop failing in the year 1820, I was compelled to feed my stock on my crop of mangel wurtzel; the ewes, before lambing, were taken off the few turnips I had, and put into the fold, where they were fed with mangel wurtzel, and a very small quantity of hay, and without water. After lambing, they were given the same food, and from the great flow of milk produced, the lambs were in very high condition. The whole of my flock were kept entirely on this food, from the beginning of January, 1821, to the end of March, during which period I weighed eight wether sheep, and put them into a barn, where they were given twenty-five pounds of mangel wurtzel, and about five pounds of good hay for each sheep, every twenty-four hours, for five successive weeks: some of them gained more than others; but on weighing them out, at the expiration of that time, they had increased upon an average, eight pounds per quarter. I can also state that, having killed several of the sheep, the mutton was particularly mild and sweet. I am fully persuaded that there never was better food for sheep, or food that will create so great a flow of milk from the ewes. If you consider this a sufficiently minute reply to the queries of your correspondent, I think the sooner it is made known, through the medium of your valuable Journals, the more satisfactory it will be to M. W. I remain, your well-wisher, P.

P. S. It is necessary to observe, that the mangel wurtzel must be carefully cleaned, without washing, and given whole.

RECIPE.

Consumption.—Completely to eradicate this disorder I will not positively say the following remedy is capable of doing, but I will venture to affirm that by a temperate mode of living, (avoiding spirituous liquors wholly) wearing flannel next to the skin, and taking every morning half a pint of new milk, mixed with the expressed juice of green Hourhound, the complaint will not only be relieved, but the individual shall procure to himself a length of days beyond what the mildest fever could give room to hope for.

I am, myself a living witness of the beneficial effects of this agreeable, and though innocent, yet powerful application. Four weeks' use of the hourhound and milk relieved the pains of my breast, gave me to breathe deep, long, and free; strengthened and harmonized my voice; and restored me to a better state of health than I had enjoyed for many years.

A CATALOGUE OF

Farm and Garden Seeds,
Books on Agriculture and Agricultural Machinery—for sale, wholesale and retail, by
E. S. THOMAS,

No. 57, South-street, Baltimore.

FIELD SEEDS.—Mangel Wurtzel, Short Orange Carrot, same as described in a late No. of the Ameri-

can Farmer as of the best quality—Long Orange Carrot, Purple bearded Spring WHEAT, English White Essex do. do.

TURNIPS.—Ruta Baga or Yellow Swedish Turnip, Early Dutch do. Early Yellow do. Long French do. Green Round do. Round White Norfolk do. Globe do. Malta or Yellow Russia do. a new kind, White Tankard do. Green Tankard do. Red Tankard do.

GRASS SEEDS.—Trefoil, this grass is cultivated in the same way as Red Clover, and is used as a substitute for that, when the lands have become "Clover sick"—it makes good hay—English Perennial Red Clover, Lucerne, St. Foin, Sweet Scented Vernal Grass, English Meadow Focktail, Burnet Grass, green all winter, Spring Tares or Vetches, Millet, Orchard Grass, Timothy Red Clover, Herds Grass.

GARDEN SEEDS.—Superfine Early Peas, Charlton do. Early Hotspur do. Dwarf Marrow do. Large Marrow do. Large Green Imperial Marrow do. Dwarf Imperial Marrow do. Green Marrow do. Knights Marrow do. a great delicacy, Egg do. Prussian Blue do. very great bearers, Royal Dwarf do. Cluster Peas, a new kind and great bearers.

BEANS.—Prost Beans, Windsor Beans, Turkey Long Pod do. Early Kidney do. Red Speckled Kidney do. Dun colored do. Liver coloured do. do. Yellow do. do. Du ch Dwarf do. do. Cantaberry do. do. Black speckled do. do. Battersea do. do. Best Lima do.

CORN.—Early Golden Sioux Corn, fit for boiling in 60 days, ripe in 90 days—Early sweet sugar Corn.

ONION.—Strasbourg Onion, White Portugal do. Silver skinned do. very fine, Deptford do. Welch do. Tripoli do. best of all, White American do. Yellow do. do. Red do. do. these three come to perfection in one season, Flag LEEK, Large Swelling PARSNIP (all in PARSNIP, Scorzonera, SALSIFY.

RADISH.—Early Scarlet Radish, Salmon do. White Turnip do. Red Turnip do. Black Spanish do. Long white Naples do.

LETTUCE.—Early frame Lettuce, Grand Admiral do. Hardy Green do. Tennis ball do. White Cabbage do. Drumhead do. Dwarf forcing green cross do. Large Broom head cross do. Florence cross do. Imperial do. Round SPINNAGE, White curled ENDIVE, Curled CRESS.

BET.—Long smooth blood Beet, Red Turnip rooted do. White do. Green do. for pickling.

CELLERY.—Patagonian Cellery, very large, Solid white do. Red solid do. Italian upright do. Garden SORREL, French do. COIN SALLAD, Curled PARSLEY, Hamburg do. very fine.

CABBAGE, &c.—Early Cauliflower, Late do. Early Dwarf Cabbage, Early York do. Early Dutch do. Large York do. Large Battersea do. Sugar Loaf do. Large flat Dutch do. Red Dutch do. for pickling, Large green Savoy do. Dwarf green Savoy do. Yellow curled Savoy do. Early Cape BIOCOLD, Late Cape do. Early purple do. Late purple do. Dwarf purple do. Green do. White do. Green curled BORE, COLE, Brown curled do. BRUSSELS SPROUTS, Scots CALE, Sea do.

CUCUMBER, MELLON, SQUASH, PUMPKIN, &c. Early prickley Cucumber, Fine long do. White spine do. Green Turkey do. White Turkey do. Paris Rock Cantelope Mellon, very fine, Cantelope do. Musk, do. Water, do. Golden yellow Pumpkin, Early bush Squash, Winter crookneck do. very fine. Rabbinose or Squash PEPPER, Cayenne, do. ASPARAGUS—MUSTARD.

POT AND SEED HERB SEEDS, &c.—Balm, Sage, Pot Marjoram, Sweet do. Winter Savory, Summer do. Thyme, Hyssop, Sweet Basil, Bush do. Rosemary, Lavender, Fennel, Anise, Caraway, Saffron, Peppergrass.

BOOKS.—Farmer's Companion, being a complete system of Modern Husbandry, by R. W. Dickson, M. D. illustrated by 104 plates, 2 large volumes, \$15.—Moubray on Poultry, Swine and Cows—Keys on Bees—Tibb's Experimental Farmer—Cully on Live Stock—Curtis on Grasses—Carnell on home-made Wine—Mawe's and Abbercrombie's Gardener—Beaton's

new system of Cultivation—Huish's instructions for using the Bee Hie.

A general view of the state of Agriculture in the following counties in England and Scotland, drawn up by order of the National Board of Agriculture, and officially correct. Each compete in one volume, and varying in price from two and a half to five dollars. Viz. — Bedford, Bucks, Cambridge, Cheshire, Devon, Durham, Gloucester, Hereford, Hertford, Huntingdon, Kent, Leicester, Lancaster, Lincoln, Middlesex, Monmouth, Norfolk, Northampton, Northumberland, Nottingham, Oxford, Shropshire, Suffolk, Surrey, Sussex, Warwick, Worcester, Wilts, York, Herwick, East Lothian, Roxburgh, and West Lothian—all by different authors, forming a mass of agricultural information from the pens of the first agriculturists in England.

MACHINERY, &c.—The following are put at first cost in London, to close sales:—Improved Hay Making Machines. These are great labor saving machines; are drawn by one horse; are very strong and durable. I used one of those machines upon my farm the last summer, which far exceeded all expectations, making Hay as fast as fifteen men could cut it. Price \$75.—Devonshire Hand Apple Mills, \$30.—Single-Hand Drills, \$15.—Northumberland Drills, \$20.—Hill's Hoe Ploughs, with cultivating Irons, spare shares, &c. \$25.—Expanding Horse Hoes from 8 to 18 inches, \$15.—Flexible tubes for sheep that are hoven or choked, \$3.—Banbury Turnip Cutters, \$25.—Bow Index Gauges, \$15.—Weighing Machine, \$25.—A new and greatly improved Wheat Fan, \$25.

Very large allowance made to those who purchase to sell again.

EXILE.

For Sale, the imported Cleaveland Bay.

He will be three years old in May, and is upwards of 16 hands high. The following is the description of his breed from the gentleman in England, that bred him, who is admitted to have the best of them:—"The breed of Cleaveland Bays, of which your colt Exile is of the pure blood, was the native sort of improved English Horse, before the introduction of the Arabians and Barbs. Yorkshire has always been celebrated for its horses, and Cleaveland is the northern district of that county. By crossing the mares with race horses, the Yorkshire breeders have supplied, for many years, the Metropolis with high priced coach horses, and the sportsman with hunters, to carry high weights. The cross with the blood horse is admirable, as it combines strength and power with fleetness. But by crossing too much with the racing blood, we have lost so much in size and strength, that it is difficult to get a horse to carry weight, that has sufficient activity. To bring back these qualities, the Cleaveland Stallion, is particularly adapted. They are of themselves, good carriage horses. I have a pair of my own breeding, for which I would not take 300 guineas—for cavalry they are capital, combining the weight of the heavy, with the force and impetus of the light. For the plough, their quick step is of great advantage—their color ranges through the various shades of bay, but I never have bred them of any other colour—when I purchased them seven years ago, the breed was becoming very scarce, but I hope it will be restored." For further information respecting this race of horses, see Strickland's Survey of the East riding of Yorkshire, Marshall's Yorkshire, Cully on Live Stock, &c. Exile may be seen at Crowell's Livery Stables, Commerce street, where he will remain 10 or 12 days.

Printed every Friday at \$4 per annum, for JOHN S. SKINNER, Editor, by Joseph Robinson, at the N. W. corner of Market and Belvidere-streets, Baltimore, where every description of Book and Job Printing is executed—Orders from a distance for Binding, with proper directions, promptly attended to.

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AGRICULTURE.

From the Bath and West of England Society Papers, Vol. X.

AN ESSAY ON MANURES,

BY ARTHUR YOUNG, ESQ.

To whom was assigned the reward of the first BEDFORDIAN MEDAL voted by the Bath and West of England Society, 1804, agreeably to the following advertisement :

"The BEDFORDIAN GOLD MEDAL will be presented to the author, who, at or before the first meeting in November 1804, shall produce to the Society the best essay, founded on practical experience, on the nature and properties of manures, and the mode of preparing and applying them to various soils. In which essay shall be pointed out the cheapest manner of collecting and preparing the different kinds of manures, and the state, season, and quantity in which they should be applied."

Intention of the Premium.

It is apprehended that the Society expect something in the nature of a general Treatise on Manures, by addressing the advertisement to authors. Had they meant the mere register of experiments made by the candidates, it is presumed they would, as on other occasions, have said merely the person who shall make, or register and produce, &c.; and they would probably have allotted a longer period for such experiments than the course of a single summer.—The very important words, however, of *practical experience*, point out the nature of the authority they require; that no essay will meet their approbation which has theory for its basis; the foundation must be fact, and experience, whencesoever drawn.

Division of the subject.

The words of the requisition demand that attention should be paid to the following circumstances, which may also be thus arranged :

1. The nature of manures.
2. Their properties.
3. Collecting.
4. Preparation.
5. State in which applied.
6. The application.
7. The season when applied.
8. The quantity.
9. On what soils.

In classing the various bodies which may be applied as manures, it may be proper to divide them into,

1. Such as are dug or made on a farm; and
2. Such as are usually purchased.

The first comprehend,

1. Marle.
2. Clalk.
3. Lime-stone and lime.
4. Clay loams and sand.
5. Burnt clay.
6. The ashes of paring and burning.
7. Yard dung.
8. The sheep-fold.

9. Pigeon's dung
10. Pond and river mud
11. Seed weeds.
12. Pond and river weeds.
13. Hemp and flax waste.
14. Burnt vegetables.
15. Green crops ploughed in.

Under the second head are included,

Animal Manures.

1. Night soil.
2. Bones.
3. Sheep's trotters.
4. Hair.
5. Feathers.
6. Fish.
7. Greaves.
8. Woollen rags.
9. Currier's shavings.
10. Horn shavings.

Vegetable Manures.

1. Wood-ashes.
2. Peat-ashes.
3. Coal-ashes.
4. Soot.
5. Peat-dust.
6. Pot-ash waste.
7. Sugar baker's waste.
8. Tanner's bark.
9. Malt-dust.
10. Rape cake.

Fossil Manures.

1. Salt.
 2. Gypsum.
- To which may be added some remarks on composts, and on the food of plants.

PART I.

Of the Manures made or dug on the Farm.

CHAPTER I.

Of Marle.

Marles the most common in England are clay marle, stone marle, and shell marle. They are by some distinguished by their colours white, red, blue, black, &c. but colours deserve no other attention in these bodies than as indications of iron.

§ 1.—The Nature of Marle.

The Bath and West of England Society is a body much too enlightened to use any term in an advertisement, the purport of which has not been well considered. When, therefore, the expression *nature* is admitted, as distinct from *properties*, they seem to require some intelligence on the component parts of the substances used as manures; alluding probably, by the term here adopted, to the *passive* qualities of bodies, as the *active* ones are supposed to be discriminated under the word *properties*.

Marle is a fossil substance, usually composed of sand, clay, and calcareous earth; the red and black marles have a small quantity of iron. I have analyzed red marle from Cheshire, which had seventeen grains in one thousand; and there are very few specimens, even of the whitest marle, in which prussiat of pot-ash will not give some note of the presence of that mineral. The quantity of calcareous earth varies extremely, from 25 to 80 per cent. Mr. Kirwan remarks the impropriety of not calling a body chalk which contains more than 80.—One of the best clay marles contained 40 per

cent. of calcareous earth, 50 of clay, and 8 to 10 of sand, with clear signs of some iron.

Marle falls in pure water;—but all examination by water is uncertain, if the water itself be not first analyzed. It falls also by exposition to the atmosphere. Of its three constituent parts, calcareous earth is composed of about one-third* part carbonic acid, which is driven off by heat. The clay contains generally a small portion of iron, a little volatile alkali, and some sulphuric acid; and even when deprived of all organic matter, yields hydrogen gas. The sand, it *clan*, contains none of these substances. Phosphorus may be gained from all calcareous earths.

§. 2 —The Properties of Marle.

The property that renders this manure particularly valuable, is the calcareous earth (carbonate of lime) it contains; and to every enlightened farmer it must be sufficiently evident, that as all fossil manures are intended to correct or improve the texture of the soil, its constituent parts must be known, before any application can rationally be made of this or any other similar manure. A fair specimen of each division of soil should be selected; I do not say field, because the line of fences may not be the line of change in quality. In this selection every material circumscribe of elevation, slope, shelter, &c. should be had in contemplation, and the usual quantity of rain that falls in the district. The specimen should be taken from very many spots, that the average may be the fairer. The authors are numerous who direct how soils are to be analyzed. The grand object with relation to marling is to discover the proportion of calcareous earth already in the land; and it is easy, while this is doing, to find the proportions of sand and clay; which three constituents form the texture of soil.

It is extremely difficult to discover, from the knowledge at present possessed by the public, what ought to be the quantity of calcareous earth in a soil. The best specimen analyzed by Giobret, had 6 per cent.; by Bergani, 30 per cent.; by Dr. Fordyce, 2 per cent.; a rich soil, quoted by Mr. Davy, in his lecture at the Royal Institution, 11 per cent. This is an enquiry, concerning which I have made many experiments, and on soils of the most extraordinary fertility. In one, the proportion was equal to 9 per cent.; in another, 20 per cent.; another, 3 per cent.; and in a specimen of famous land, which I procured from Flanders, 17 per cent. But the circumstance which much perplexes the enquiry is, that many poor soils pos-

* By Mr. Kirwan, a third; by Bishop Watson, 9 in 20; and by other authors, with some small variations. Extreme accuracy is desirable in merely philosophical experiments, but useless in agriculture;

† Boyle, Kirwan, &c.

sess the same or nearly the same proportions, as these most fertile ones. To attain the truth in so important a point, induced me to repeat many trials, and to compare every circumstance; and I am disposed to conclude, that the necessity of there being a large proportion of calcareous earth in a soil depends on the deficiency of organic matter; of that organic matter which is convertible into hydrogen gas. If the farmer find, by experiment, that his soil has but a small quantity of organic matter, or knows by his practice that it is poor, and not worth more than 10s 15s or 20s. an acre, he may then conclude that there ought to be 20 per cent. of calcareous earth in it; but if, on the contrary, it abound with organic matter, and be worth in practice a much larger rent, in that case his marle cart will not be called for, but there be but 5 per cent. or even less, of calcareous matter. Another motive for marling, which also concerns the texture of the soil, is that of giving tenacity and firmness; for this purpose clay marles are better than any other. One property of the calcareous earth which is in marle, is that of correcting acidity. Some soils abound with acid particles, which are prejudicial; these are neutralized, and rendered, if not beneficial, at least harmless.

That it is a property of the calcareous earth to be taken up by plants, there is a great reason to believe from many experiments. The earth of vegetables is for the greatest part calcareous.* Water dissolves $\frac{1}{10}$ parts of its weight of calcareous earth; and we find in this $\frac{3}{10}$ of carbonic acid, and thus impregnated, it dissolves $\frac{1}{15}$ of its weight of carbonate of lime.† The vegetable acids have a great affinity with calcareous earth.‡ In this respect, however, the quantity demanded is very small; for Lord Dundonald asserts, that all the calcareous earth to be obtained from an acre of most crops will not exceed 80 pounds. Should the soil be deficient in calcareous earth, the application of marle must with this view be important.

In regard to sand and clay, they both enter as component parts of vegetables; but they abound in all soils sufficiently for this purpose. A material advantage attending the use of calcareous manures results from their assisting the putrefaction of animal and vegetable bodies. The particles, waste, and remnants of vegetables unconsumed, which all lands abound with, are thus assisted in the decomposition, and prepared for becoming the food of fresh vegetables. Dung also, when applied after such a manuring, acts sooner, and with greater effect. Of composts I shall speak hereafter.

§. 3.—Collecting.

The common way of procuring marle is by digging. It should however be mentioned, that it is dredged up from the beds of some rivers, particularly the Shannon.

The white shell marle, and white species of sin marly speckled levity, (probably the *aguricus mineralis*) are both found under bogs, and also at the bottom of lakes.

No person, whose land wants marle where it is not generally known to exist, should be satisfied without a most careful examination by boring. A borer for twenty feet depth does not cost above 3l. (for eighty feet not more than 20 guineas) and it is used without difficulty by any common workman, after a little attention in explaining it. The bottoms of lakes and rivers should also be examined.

§. 4.—Preparation of Marle.

None.

§. 5.—State in which applied.

Whatever benefit may result from exposition to the atmosphere, it must be attained after spreading; the quantity is too large, and carriage too expensive to permit any additional operations. If dredged from the bottom of lakes or rivers, the heaps should be left from six to twelve months.

§. 6.—The Application.

Under this head must be considered.

1. Carting.
2. For what crop.
3. Depth of tillage.

The expense of carriage is every where so great for bulky manures, that every means should be used for lessening it. The most important improvement in this respect is that of substituting one-horse carts instead of the larger ones in more common use. The superiority in every respect of expense, viz. of vehicle, number of horses, weight drawn, drivers, (proportioned to weight, &c.) has been so well ascertained, that the point should be considered as proved and done with.

The crop for or on which marle is first carried, must be either on lays or layers, as they are called, or fallow. The former is much the best, as the farmer has the power of leaving it exposed six, twelve, or eighteen months; the longer the more advantageous.* The successive changes of the atmosphere moulder it down; and the roots of the grass combine it with the surface, where it is preserved much longer than if stirred immediately by the tillage of a fallow. This remark applies proportionally to the looseness of the soil on which it is spread. On sandy soils it is essential to good management. But I have in my own practice found, by the use of some thousands of loads, that the above position is strongly applicable to wet and heavy loams, as well as to sandy loams, both of which have been greatly improved by clay marles. Let it be remembered, that all fossil manures have a constant tendency to sink, so that in a course of years they will subside below the action of the plough; and this takes place pretty much in proportion to the number of ploughings which the land has received.

Thirdly, respecting the depth of tillage. The most experienced farmers are apprehensive of turning the marle in too deep. The most approved practice is to plough the layer shallow

for peas. There is but one objection to turnips, and that is giving so much tillage so early after the improvement. Avoid potatoes, for I have found them mischievous in this period of marled land.

§. 7.—The Season.

This is soon dispatched; for the business of marling is usually done on such a scale as to preclude choice; it must be performed when the teams have leisure for the work. And if these are sought for the purpose, in order to finish a whole farm as fast as possible, that the farmer may reap the longer benefit, they are generally kept at work the whole year through; but if the business is on a smaller scale, so that the farmer may have his choice, on all wet and heavy soils it should be summer work, and on dry ones it may be as well performed in the winter.

§. 8.—The Quantity.

This is an object of extreme importance; for I have known very ill effects from giving over doses of marle, and in some cases the fact is curious. In the earlier stages of the improvement in Norfolk, and even to the present time, some farmers, from experiencing the evil of looseness and a want of texture in their poor sands, marled at the rate of from one hundred and twenty to one hundred and fifty cubical yards per acre; and the consequence was what they term *setting*. The firmness was produced, but being too much at the expense of friability, a necessary property in sand, the productiveness of the fields was *damaged* for twenty years; so that at present upon sands of weak fertility, from sixty to eighty cubical yards, or 40 to 60 large loads, are a common quantity, and found to answer well. If rather underdone, they find it better to give a *second* dose than more at once. This prejudice from overmarling is remarkable; because, after it is done, the analysis of the surface will indicate no improper proportions, nor any which are not found on very rich soils. I conceive it is for want of the additament being homogenous, and well assimilated with the sand, as in soils of a natural texture it is rather a mixture than an incorporation. But *why* this should continue for so many years, it is very difficult to account for.—When the evil is discovered, the management should be varied. Seeds should not occur so often, nor be left so long as usual, and tillage more freely excited; this will accelerate the subsidence, and the marle will be more beneficial in such a case below than on the surface. The quantity to be spread on poor, loose, wet loams is much more considerable than on loose sands; I have not known, in this case, too great a dose given; though I have spread as far as one hundred cubical yards per acre, and have known much more. The marle in this case assimilates more easily. On loose peat bogs, and on moors, the greater the quantity the greater the improvement. In all cases where the object is to give calcareous earth, the quantity necessary is much less than when the intention is to consolidate the texture of the soil. In East-Norfolk where the texture approaches to perfection, they lay on so little as

* Kirwan. † Burgman. ‡ Senbier.
§ Macbride, Fringle, Lavoisier, &c.

* See two very valuable practical papers on this subject, by Mr. Macro, (Annals of Agriculture) and by Mr. Rodwell, (Communication to the Board of Agriculture.)

ten or twelve to twenty tons. In Somersetshire, thirty loads an acre, raised by a shaft, has improved from 3s. 6d. to 31s. 6d. an acre.

§. 9.—The Soil.

The defect of a soil must be understood, before a wise farmer will put himself to the expense of marling. The experience of every day will inform him if his land want tenacity and consolidation: but the want of an addition of calcareous earth, as a food of plants, can be discovered only by analysis. There are other circumstances which demand attention. If the *chrysanthemum segetum*, the *polygnum pennsylvanicum*, and the *rumex acetosella* abound, the experienced farmer will pronounce that the land wants marling: and turnips producing deformed strings of roots, without swelling into the proper globular form, or being extremely subject to the well known distemper of the *anbury*, both afford a similar proof of too much looseness of texture, and suggest the consolidation of clay marle. Those evils vanish after this operation. The *erica vulgaris*, or common heath or ling, abounding in land, is generally a proof of an acid soil; and all peat soils are found, on analysis, to contain a considerable quantity* of the gallic acid, or tanning principle.† Some have been rendered quite sterile by acids.‡ “I was led,” says Mr. Wight, “to see a stratum of moss impregnated with vitriolic acid so abundantly, that out of 4 lbs. of the moss one pound of green vitriol was extracted.”§ There is a bog in Bedfordshire, in which sulphat of iron abounds in a degree almost equally extraordinary; but it has been converted into one of the finest watered meadows in England by his grace the Duke of Bedford. Wherever such soils are found, the application of marle, by reason of its calcareous earth, is sure to have great effect. Instances are too numerous to quote; the acid is converted into sulphat of lime, or gypsum, and consequently harmless, if not beneficial. Upon wet but loose loams, which are found when manured to be more productive of straw than corn, I have found clay marle to be a cure, and attended with unquestionable profit. Another quality of these loams is that of being uncommonly pestered with the red worm; and it is a singular quality of marle to lessen this evil considerably; whatever gives them a firmer texture, has a tendency to this effect.

CHAPTER II.

Of Chalk.

The difference between marle and chalk is not so great as to demand a repetition of sections. It will be sufficient to point out the circumstances in which there is a variation.—Chalk is a substance in which there is a greater proportion of calcareous earth than in marle, and at the same time it is comparatively harder; for though many sorts of chalk will, when exposed to the atmosphere, moulder down into

powder, yet others require some years to effect such a reduction; and though we do meet with soft chalks, they are not common. Many specimens of this fossil have been analyzed, that yield above 90 per cent. of calcareous earth; and Mr. Marshall registers one that contained 98 per cent. The properties are nearly similar to those of marle. The circumstances in which they vary most are the calcination of this body for making lime, and the power it has of rendering tenacious clay more dry and friable; whereas stone marle alone has not the same effect, and is inferior to the hardest sorts of chalk. It is also more common to chalk grass lands than to marle them; and it works a capital improvement on low, coarse, sour meadows, rendering them firmer, and improving the sweetness of the herbage.

In raising chalk, there is one distinction from marle, (unless of great solidity) which is that of sinking shafts for it. This is the general practice of Hertfordshire. The chalk drawers travel in gangs, chamber it all around, leaving columns to support the incumbent earth, and draw it up in buckets. They will wheel it on to the land for 8d. the load of twenty-four bushels, to the distance of twenty poles from the shaft. This is a much more convenient and a cheaper way than opening marle pits; and it saves, on strong land, the mischief of poaching by the draft of horses.

Relative to preparation, state, application, and season, the remarks on marle may be referred to.

In regard to quantity, it is generally used in much smaller quantities per acre than marle. In Essex, where it is brought by sea from the Kentish coast, from five to eight waggon-loads are attended with more remarkable effect than even dung itself, if the land has not been chalked before. More than forty cubical yards an acre are rarely spread.

In the soils upon which chalk is used, there is a considerable variation from the practice relative to marle. The most remarkable effects which I have seen attending it have been upon good sound loams, worth from 15s. to 20s. an acre. Six or seven waggon-loads per acre are seen immediately in the crops, and to an inch. Six miles from Malden in Essex, where it is spread at the expense of about 20s. per waggon-load, the same result has been observed; and also at Enfield; the soils have not been analyzed, but it may be supposed that they are, though valuable, deficient in calcareous earth. It is remarked, that chalk presently gives the land a reddish colour, so that the part of a fallow which has been chalked, will, from that tinge, be discernible at a distance. A very singular circumstance observed in Essex is, its being an enemy to what their farmers call grazing, or running to turf. A field, which before chalking will run of itself to a fine head of white clover, does so no longer after chalking. The chalk is not soft, but rather hard. The sharpest frosts leave many lumps unbroken, which must be done with pickaxes; and the hard bits, which break to a clear white, are better than those which crumble between the fingers. This attaches to the texture of the soil, which is rather too stiff for turnips.

Soils abounding with spontaneous wild sorrel are well known to be highly improvable by chalk; and Lord Dundonald has a remark which applies to the fact: “The oxalic acid, or acid of sorrel, is found in the plant of the same name, combined with the vegetable alkali.—Much of the oxalat of lime will be formed by adding calcareous matter to the ground abounding with plants of sorrel, or other vegetables containing the sorrellic acid. From the insolubility of oxalat of lime, it is not probable that it can contribute, *per se*, to the food of plants. It cannot be decomposed by alkalis on superior affinity, but it may by the vitriolic acid, in which case gypsum will be formed; and the acid thus disengaged will combine with fixed or volatile alkaline salts, or magnesia; these are soluble, and promote vegetation in a high degree.”

Chalk is used successfully on all soils upon which marle is found to answer. It is not a general favorite in Norfolk for poor sand, or even middling ones; but some farmers of considerable note for accuracy of observation, have of late used very hard chalk, and with great success.

On all moors, peat bogs, and peat fens, every species of calcareous earth is applied with singular effect: chalk is to the full as valuable, or more so, than marle, as it contains more calcareous earth.

CHAPTER III.

Of Lime

After the volumes which have been written upon this Manure, it ought to have been well understood in every variation, and in every application; but so much theory has been mixed with facts, that the contradictions are numerous and perplexing. The only chance of attaining plain and simple truths will be to reject all opinions, and examine the language of experiment alone.

§. 1.—The nature of Lime.

All hard calcareous substances of whatever colours, or other quality, will burn into lime; marbles of various sorts, limestone, chalk, spar, &c. The operation of fire expels from these substances certain portions of water and carbonic acid, leaving pure or nearly pure calcareous earth: which, while deprived of its acid, has certain caustic and other qualities. It has a strong power of re-absorbing moisture, and carbonic acid, when exposed to the atmosphere; and from all other bodies with which it comes in contact; but it cannot unite with the air unless it is previously moistened: 100 parts of lime absorb about 28 of water. To regain its full portion of air from the atmosphere, it requires a year or more; but not if spread purposely.* One thousand bushels per acre have been spread in Derbyshire. In the proportion of twenty cwt. of lime gaining five cwt. from the atmosphere, that quantity would gain above thirty tons from it.† Of how great consequence is it to discover the effect of carbonic acid on vegetation?

Relative to the other constituent parts of

* Essays Physical and Literary, vol. ii. p. 249.

† Headrick.

‡ DarLuc Hist. Nat. de Prov. vol. ii. p. 127.

§ Husbandry in Scotland, vol. iv. p. 415.

* Kirwin. † Bishop Watson.

lime, there is yet in the chemical world some uncertainty. Mr. Boyle says expressively, that he has found sulphureous particles in lime.—There is no doubt of iron being contained in many lime-stones. Dr. Priestley conjectures, that some of (what he calls) the phlogiston of the fuel adheres to the lime. Lavoisier declares, that quick-lime contains a great quantity of the matter of pure fire. He notes also some slight traces of volatile alkali, if burnt in a close vessel. It is soluble in about 700 parts of water. The observation of Guyton de Morveau, that lime is composed of carbon, nitrogen, and hydrogen, is not sufficiently cleared up; it contains phosphorus.*

These remarks are applicable to the purer limes; others less pure contain a portion of calcined sand and clay. But whatever is peculiar to lime depends on the calcareous earth.—There is one material variation in the nature of lime, which arises from the stone having a mixture of magnesia it. Mr. Tennant has explained this fully in the Philosophical Transactions, by comparing the lime-stone of Doncaster with that of Ferrybridge: the latter is very pure, and the former contains three parts of pure calcareous earth, and two parts of Magnesia. Breton lime in Derbyshire is of the same quality. Magnesian lime-stone is easily known by the slowness with which it dissolves in acids; the color is also a means, if not absolutely detecting, at least of suspecting its presence, for no lime stone that breaks blue contains it; the hue is generally brown, or of a fawn color. It has been found from many observations to be mischievous in agriculture, as calcined magnesia is a poison to plants.

§. 2.—The Properties of Lime.

The care evident to any person who considers the constituent parts. By its calcareous earth to a mild state, that is, when all or much of its carbonic acid is re-absorbed, it has all the properties of chalk or marl, so far as the calcareous quality is concerned; it yields that substance to plants, if wanted; it neutralizes acid salts, and consequently will act powerfully on all peat soils, whether hogs, fens, or moors: but it will not give tenacity to sand-like marl, nor the friability to clay which chalk will effect.—When laid on in its caustic state, and especially in large quantities, it destroys the spontaneous growth of those and such like soils; for though it resists putrefaction, (which is no good quality) yet it resolves organic substances into a mucus†. The truth of this observation is visible on lined moors; and this is a very valuable quality, when the spontaneous growth is a nuisance, as it generally is on those soils. It strongly attracts inflammable substances, such as sulphur and resins; and Dr. Darwin ingeniously supposes, that by its union with carbon it renders that substance soluble in water, forming a *hepar carbonis*. But circumstances which demand reiterated experiments, and are in such extremely curious, can be no more than hinted at. It is in a state, when slacked, of such extraordinary divisibility, that it is capable of much more intimate combination with other substances than either marl or chalk.

In proportion as the carbonic acid is beneficial to vegetation, must be in a great measure the importance of lime. But here some obscurity attends the subject; for neither in this respect, nor with any view to its phosphorus, fire, volatile alkali, or any other secondary constituent part, is it to be considered as *directly* yielding the food of plants. A thousand practical observations prove, that upon very poor soils it has no effect; and that the benefit derived from it is in proportion to the undecomposed vegetables in the land.

§. 3.—Collecting; Preparation.

Lime-stone exists in many districts, unknown to the farmer: in this respect it varies from chalk. In the South-Eastern counties of the kingdom, the basis of which is chalk, a farmer may be almost sure that chalk is under him, though perhaps at a depth unprofitable to work: but lime-stone is more various, and found in more insulated situations. The common test is by pouring a powerful acid on the stone; yet this test is not practically correct; for some specimens which effervesced with nitric and auratic acids, would not burn to lime with any heat that could be applied; the cause seemed to be a great mixture of micaceous particles.

Calcination is the preparation of lime; an operation pretty well known, wherever it is commonly found. Kilns are of various constructions, and of very different degrees of merit. To describe them would swell these papers to too great a bulk: the most profitable are the perpetual draw-kilns, egg-shaped, with a short neck, and a roof over the mouth in the shape of an extinguisher, open at the point; this gives a draft. Effective burning is a point of great consequence; as the causticity of the lime depends on the entire expulsion of the carbonic acid, known instantly by its levity in the hand. It is burnt with wood in various kilns; and with peat, culm, or small-coal, in draw-kilns.

§. 4.—State; Application.

The most material distinction in the application of lime is, that of spreading it fresh in its most caustic state; or keeping it till slacked, and till it has re-absorbed more or less of its carbonic acid. The common practice of various districts has ascertained this point very satisfactorily, and in perfect conformity with chymical principles.

Upon all soils in a state of nature, and greatly abounding with undecayed vegetables which are required to be speedily destroyed, it should be and is spread *hot from the kiln* as it is termed, which is in its most caustic state. But in other cases, by the general practice, and consistently with principles, lime is slacked before it is spread. Upon waste lands the causticity has an evident and necessary effect; but not upon cultivated soils, where the antiseptic quality of the substance, while deprived of its carbonic acid, would tend to prejudice rather than improvement. When the lime has regained its gas, it rather promotes putrefaction; and its carbonic acid is really a *food of plants*, the acquisition of so large a quantity in the soil cannot be immaterial.

A truly practical husbandman of great experience gives directions for the application which merit attention. "Let the whole quantity of lime, intended to be used on any given field of moderate size, be laid into one heap, where water can be had most conveniently. Let it be there thoroughly slackened; and immediately after it is cold, which it will be in a day or two, fill the carts, and spread the lime out of them with shovels equally over the surface.—The more common method of laying it down in small heaps over the whole field, to slack by rain, is very erroneous; it is liable to get too much rain, which, in place of reducing it into a fine powder, converts it into a running mortar, in which state it will neither spread equally, nor mix with the soil."* And Mr. Wight remarks, for the same reason, that both the soil and the lime should be quite dry at the time of spreading. In Dumfriesshire, quick-lime being compared with that which had lain in a heap for several years, in consequence of a law-suit, the latter did much more good than the former.†

§. 5.—Season.

Where improvements are carrying on upon a large scale, and draw-kilns are kept at work through the year, the choice of season becomes of secondary importance; but liming should otherwise no more go on in winter than building. It may be continued from March to October; but summer is the best season. It should be spread on a layer one full year before ploughing, that it may have time, as Mr. Craike observes, to fix itself firmly on the sward. If ploughed too soon, it falls to the bottom of the furrow, and will be the sooner lost; for it continually sinks. The same observation has been made in Perthshire; they do not plough till it has taken a firm gripe of the ground‡. The same was the result in Lancashire. Three years before breaking up a ley, part was limed with three hundred bushels an acre; and another part, only one year before, the former produced oats 10 for 1 of the seed, the latter 6 for 1§.

§. 6.—Quantity.

It would be easy to collect many authorities, and even respectable ones, which specify the quantities that have been used successfully; but the advantage would not be considerable, unless there was a clear reference to other circumstances. In the practice of the greatest and most able cultivators, soils are rarely analyzed carefully by a chymical operation; and without this our information can only be had by halves. The want of chymical examination going hand in hand with farming practice has left agriculture, as a science, but in its infancy. The largest quantities that have been spread, and with entire propriety, have been on hogs and peat moors, and on mountains. The Bishop of Landaff speaks of one thousand bushels per acre on moors in Derbyshire with great suc-

* Mr. Craike, of Arbigland.—Transf. Dumf. Soc. No. II. p. 34.

† Report.

‡ Statistical Account of Scotland, vol. xix. p. 436.

§ Dr. Campbells communication to the Board of Agriculture.

* Darwin. † Kirwan. ‡ Delaval.

cess; five or six hundred are there not uncommon. Lord Chief Baron Foster, in Ireland, went as far as to three hundred barrels, on a mowly waste; and found the greater the quantity the greater the improvement. Dr. Anderson tried from one hundred to seven hundred bushels per acre, and found the good effect to increase regularly with the quantity. In more common cases, the quantities vary in general practice from thirty-six to one hundred and sixty bushels.

§. 7.—Soil.

Upon peat bogs and peat moors and mountains, the subject is discussed as soon as named. Experiments on every scale, and under a very great variety of circumstances, speak an uniform language: the benefit of applying lime is great and decided. On these it operates by means of all its most essential qualities.—Its causticity destroys a great spontaneous growth, and converts it into a mucus, which the atmosphere turns into vegetable mould.—Upon liming Kedgley-moor in Northumberland covered with ling, the ling was killed; and three tons an acre of white clover were sown without sowing any.* The ling flourished in the sulphuric acid, which preserved the seeds of vegetables embedded in an antiseptic mass; but this (when neutralized into gypsum) assisted putrefaction,† and prepared the destroyed vegetables to give nourishment to the dormant seeds.

Next to peat soils, other wastes that are in a state of nature, are those on which time has the greatest effect. Part of Meridan-heath was fallowed for a year, and ten acres trebly folded with one thousand sheep, ten acres well dressed with good rotten dung, and ten acres well limed; and all sown with oats and seeds. The part folded had not a bag of oats an acre, and the seeds not worth saving: that which was dunged succeeded very little better: that which was limed produced a most excellent crop of oats and seeds.‡

On many soils, the circumstance of being full of unconsumed vegetable particles is alone sufficient to ensure great benefit from lime.—“In Glendale-ward, Northumberland, the soil is naturally dry, duffy, light, full of fibrous roots, and, when in fallow, on passing over it you sink to the ancles. After being sufficiently limed, the fibrous roots disappear, the soil becomes denser, firm to tread, retentive of moisture, and produces better and more abundant crops of grain: laid to grass, white clover appears to an inch where lime was sown.”§—And in another case, in the same count, the soil light, dry, and channelly, but clear from broom, the effect was equally great. In such instances, to destroy the roots is to consolidate the land. Even on a burning sand, four chaldrons per acre have had a striking effect, but it was covered with a mossy sward.¶ On other

soils accounts are various, but many are reconcilable to each other: and probably all would be so, if every circumstance had been reported. It does “worse of all on a cold hungry clay.” “A strong, deep clay, extremely retentive of moisture, no perceptible good was produced in eight years†; but on the “rich, loose, friable,” paddy clays of Aberdeenshire, the want of lime is the want of wheat.‡ It is obvious to every reader how such accounts harmonize. There would be little use in quoting the many cases in which lime has failed. It cannot succeed where it has nothing to *work upon*, in the farmer’s language; it cannot succeed where water deprives it of its most material properties: it cannot succeed where frequent repetitions have given a full dose, perhaps too much of calcareous earth, and consumed every vegetable particle. Proper liming we have just found to consolidate a loose soil; “too much renders it soft and fuzzy, so that wheat looses at its root.”§ In such cases the author’s advice is to roll well after a frost.

I applied lime in various quantities with the ashes of a deep paring and burning. The crops were great, but not the smallest benefit from the lime. No wonder; the fire had converted the vegetable particles to ashes, that is, to carbon, alkaliæ and other salts, and calcined earth.

Much might be added to this chapter, on the repetition of liming, which, in Yorkshire,|| Wiltshire,¶ Sussex, &c. has been found useless or pernicious; and also on the courses of crops after such manures. But brevity is necessary in a memoir, which of course embraces so many subjects.

Lime Stone.

Not to multiply chapters and sections needlessly, I shall here add, that powdered lime-stone has been tried, and found to have excellent effect on such soils, as other calcareous manures operated successfully. Lord Kames says, that it is an excellent manure. Du Hamel found it so in France. Dr. Anderson calls it “most beneficial;” and says, that he has seen the model of a mill for pounding it.—In North-America a red crumbling lime-stone is found to be an excellent manure:** and pulverized stone had there great effects.†† The rotten lime-stone of the county of Cork‡‡ is probably of the same nature as that of America. The immense benefit of lime-stone gravel in Ireland is known to every body: it has been used with great success in Aberdeenshire.§§ I am in doubt whether it is not the best of all manures for improving a bog, its great weight giving the pressure so much wanted on peat-mosses.

* Blithe † Wight. ‡ Report. § Jenkinson.
|| Young. ¶ Davis ** Kalm. †† Livingstone.
‡‡ Young. §§ Statistical Account of Scotland.

(To be continued.)

REMARKS ON

The Cultivation of Tobacco.

We have translated a chapter on making Tobacco beds into this number of our work, from a French book, entitled “A Complete Treatise on the Culture

Manufacture and sale of Tobacco,” published at Paris in the 1791, by “An Old Planter;” and we commend many of the suggestions of this writer to the favourable regard of Tobacco planters generally, but particularly to those of this state, whose tobacco, if they would obtain a superior price, must be made of a bright color; and we have always thought it necessary to plant early, even on new land, if they would make a great proportion of the crop bright or yellow.

Corn planted upon stubble ground, they say, will not be injured by the cut-worm; nor will it even upon fallow ground, if every time you give a preparatory working to the land you scatter corn broadcast, harrow it in, and let your hogs root for it and the worms. Now, if by such means tobacco grounds can also be freed from these pests, we can perceive no reason why the tobacco made in this state may not be very generally and much improved in its quality, and of consequence in its price.

For, by raising an abundance of plants, fit to be transplanted from the 10th to the 30th of May, which they can easily and certainly do, by pursuing the following directions; they will be enabled to pitch their whole crops, be they large or small, before the month of June; until when they need not wait for rains to give them planting seasons, but may safely set out their plants in newly stirred earth, which at this period of the year is moist enough to sustain them. Tobacco thus early planted will ripen in August, and being perfectly ripe, will cure well; much better during such warm weather, than it could by any possible process at the close of September and beginning of the frosty month of October.

An additional advantage which attends early planting is the greater safety of your crop, as its leaves escape the depredations of the late swarm or second glut of worms: the plants getting ripe and being housed before the worms appear.

The use of hot-beds was recommended to the tobacco planters of Maryland, some time in the year 1819, by Thos. Law, Esq. Vice-President of the Prince George’s Agric. Society Md.—and we were informed, towards the close of the same year, that a scientific agriculturist on Elk Ridge, Ann-Arundel co. Md. had actually and beneficially relied upon them for a part of his tobacco plants. About this time we procured the abovementioned “French Treatise,” and by advertizing to its suggestions, and the fact just mentioned, we prevailed upon some gentlemen early in the year 1821 to try the experiment of raising a part of their plants upon hot-beds, roughly constructed in the fields, and they succeeded so well, that they intend this year to enlarge them sufficiently to raise plants enough to pitch their entire crops. To conclude, we advise every tobacco planter gradually to arrive at the same ends, by similar means; that the quality of their crops may be much improved, and their extent be more correctly foreseen. Let no one who reads this paper hereafter complain, that he has lost his plants, and therefore cannot pitch his crop—unless he has first pursued the recommendations now given; and we persuade ourselves to hope, that no one will ever have occasion to utter such a complaint who shall have faithfully pursued the chief directions of the French writer, as quoted below on this subject.

We last year saw tobacco more successfully cultivated in Baltimore county on drills than in hills, by the same planter; and he intends this year to make his drills closer on old land, and set his plants nearer together, hoping thereby to improve the texture of the leaves, making them silky and plump.

Editor Am. Farmer.

Translated from the French.

CHAP. XIII.

On Tobacco in the Beds.

Tobacco remains in the beds about six weeks, the seed is sown about the 15th of March, and the plants are set out in the field during the month of May.

* Sir Digby L-gard.

† Mr. Kirwan expressly says, that gypsum has a septic quality; but I am aware of Mr. Jay’s experiments to the contrary. As the fact depends entirely on the quantity used, I conceive that repeated trials are necessary to determine the question. A hot salt assists putrefaction, much resists it.

‡ Warwick Report. § Northumberland Report.

¶ Marsman’s York.

Sec. 1st. Of Beds in General.

The Hungarian peasantry always make their Tobacco beds against the south ends of their houses. These beds are enclosed by hurdles 2 feet high, at the bottom of which stones are laid, and on the outside of these, thorns are thickly placed, to exclude the moles; they fill this enclosure to the height of 18 inches with fresh, coarse manure, which they press closely by heating as they throw it on; and they cover this with finely pulverised earth, mixed with dung of the preceding year ought to be 8 or 10 inches thick. They do not regulate their time of sowing either by the moon, month, or the season, but by the holy week of the passing year; it is on *Good Friday*, that all of their beds are sown, and although this day may vary nearly one month in different years, they are faithful to their thermometer—their pity not permitting them to know any other. To the mysterious influence of this day, without regard to the season, they ascribe their success, and they generally succeed.

To protect their beds from the frost they strew on them thorns, or brush; dead leaves; rags; or stubble—and the most prudent cover them with mats which are spread about six inches above the bed on cross pieces, that are supported by upright sticks driven into the bed, and forked at the top. The mats are made of straw, or of reeds in which the country abounds. They guard incessantly against the frost; but their houses all being roofed with straw they do not make any use of smoke, although it is the most simple and efficacious resource.

The proprietors make their beds in cases or pens which they have constructed on the spot, by means of stakes driven closely into the earth, and methodically arranged; the bottom protected as perfectly as the sides—so much do they fear the ravages of moles. The richer planters have their beds formed in cases of stone or brick masonry, covered with glazed sashes, which have to be repaired and renewed more frequently than the other parts; but these beds cost less to support or attend them, and the heat is best preserved in them. The dung is placed in these in the manner pursued by the peasants when making theirs; but the soil on the top is lighter and better, because it is passed through a finer sieve and at the same time mixed with tan, which forms the best of all composts. as it the most readily permits the roots to extend themselves. The sashes which protect these beds are sometimes glazed, but most frequently they are covered with paper, that has been twice varnished; others finish the sashes with paper which they have greased with mutton tallow over a chaffing-dish containing a little fire; and finally there are some who, omitting these details which have to be repaired in part or whole every year, shelter their beds with tilts or covers supported above them on triangular frames, formed of a ridge pole resting at each end on a pair of rafters, which are fixed on the plates; this forms a roof that will shed the rain, it may be spread or taken off at their pleasure, and is never in their way; when no longer useful they wash their tilts and put them by for the next year. The last mentioned beds should be insulated; that we may, according to the weather, spread or withdraw the tilts which are always fastened at bottom, and care should be taken that the wind during storms may not raise or carry them away.

We will now give you a receipt for the size, and the varnish which should be put on the paper that it may resist the rains.

Recipe for the SIZE or PASTE.

Glue $\frac{1}{2}$ oz, Wheat flour 1 pint, Water a sufficient quantity. First dissolve the glue in hot water, then gradually add it to the flour, and then boil them to a proper consistency.

Recipe for the VARNISH for the first coat.

Litharge 1 oz, Minium $\frac{1}{2}$ oz, Linseed Oil $\frac{1}{2}$ pint, Bees-Wax $\frac{1}{2}$ oz, Rosin 4 oz:

First pound the litharge and minium until they are very fine, then boil them with the linseed oil half an hour, on some coals; next add the wax and afterwards the rosin, and when these ingredients have dissolved in the mixture, permit it to cool for use.

VARNISH for the second coat.

Litharge $\frac{1}{2}$ oz, Linseed Oil 1 gill, Minium $\frac{1}{2}$ oz, Bees-Wax 4 oz, Rosin 5 ozs.

This varnish is prepared and used precisely as the first—they are spread with a brush similar to that used for white-washing, and the first coat must be perfectly dry before the second is laid on.

The best way to secure the beds, it appears to us, is with tilts; for the care to be taken of the plants in the bed is but an affair of six weeks; and these coverings do not prevent the use of straw mats as employed by the Hungarian peasants; the tilt in such cases serves only as an upper and outside cover; but this mode is infinitely preferable to any other, because it permits a free circulation of air beneath the cover which causes the plants to grow more rapidly and become more hardy, than under sashes finished with glass or varnished paper, which are often injured by awkward persons and are not easily repaired.

There is a third kind of bed, not less productive than the two preceding, and preferable to them; because instead of diminishing the quantity of manure on the plantation it increases this, and without causing any extraordinary labor, hauling or expense; for this purpose, procure good soil, pass it through a sieve, mix it with compost made the year before, and spread them to the height of one foot, upon the dung-hill in the lower or barn yard previously made ready to receive it; then surround it with thorns or brush, leaving only a gate way to enter at—near to this there always is a pool or the well: this bed is sown and taken care of precisely as the other hot-beds; it is safe from vermin; and nothing need prevent its being covered with straw mats, under tilts; in such beds the plants enjoy a current of air less subject to frost than they could elsewhere; besides, they arrive at maturity in these, eight days earlier, and being near to the house they are better attended to. It is to be regretted that such beds can rarely be formed but upon large farms, where manure is abundantly made; for, their first intention being accomplished, they are broken up and enlarge the manure-heap.

DIMENSIONS OF THE BEDS.

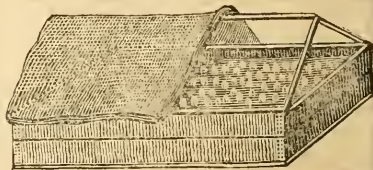
The size of the beds must be determined by the quantity of ground intended to be planted. Upon a small farm, where seven acres are annually put in tobacco, worked ordinarily by three persons, half an acre may be planted per day; on this surface nearly 2,400 plants may grow, and be 3 feet apart each way; to this number we should add enough for replanting as some always will—and many may perish; and we think it best to provide three times as many in the beds as you intend to raise in the fields, so that in case all of your two first plantings are cut off by frost or vermin, you may still have plants for a third; provide, therefore, on your beds 15,000 plants for each acre that you intend to cultivate in tobacco.

Each plant ought to be allowed a square inch on the surface of your beds, that they may grow readily—at this rate, the surface of your beds should measure nearly 105 feet, of 144 square inches, multiplied by the number of acres which are to be planted—so that the dimensions, and I think the best form also of a bed; upon which to rest a threefold hope, as it gives as many chances of securing a crop of tobacco from an acre of ground; are 35 in length by 3 feet wide; but whatever may be the length or number of your beds, let them in all cases be insulated; and we advise you to make them only 3 feet wide, that even children placed at each side may first weed, then thin, and afterwards draw the plants without doing any injury.

If you expect to plant your crop of tobacco at ten or fourteen days or times, you should divide the surface of your beds into as many sections, by some permanent mark; because, as you will plant your fields on ten or fourteen different days, so you should sow

a rateable part of your beds on the like number of days. The beds should be at least eighteen inches high, but never more than two feet; they should be enclosed by a fence at the distance, on all sides, of about five feet; be placed in the most sheltered situation, and as near as possible to your dwelling.

Here is the form of a tobacco bed in its casing, without sashes, but partly covered by a tilt, which we think preferable to the use of sashes either glazed or finished with varnished paper.



SOWING THE BEDS.

SECTION III.

Each country, and even each district has its method of sowing; some persons mix ashes with the seed, others add sand; and in some places they use compost or tan; snuff, bones ground to dust, or salt pounded very fine; each one believes that his own plan is the best, and adopts it with a hope of destroying the fly or flea, which make their appearance with the young plants; and likewise for the purpose of enabling him so to spread the seed as that the plants shall not be too much crowded.

The quantity of these foreign matters thus mixed with the seed are equally different; some add six times the quantity of the seed, others nine, ten, twelve, &c. but for this there is no rule, however the following directions may be safely pursued.

The bed being well made and well watered the day before, the soil on which you are to sow being nine or even twelve inches deep; the surface is made smooth by slightly passing a board across and on every part of it—in performing this operation there should be a person on each side of the bed; then scatter ashes through a sieve over the whole surface until it becomes of a grey color, then smooth this coat by again lightly pressing the board across the bed; finally, when sowing you will use two boards twelve inches broad and as long as your bed is wide; commence at either end, lay one board on, 12 inches from this end, so as to leave a space one foot wide between them uncovered; the seed being in a parchment sieve with but few holes in it, and these so small that only one seed can pass through at a time, you will shake the sieve over this narrow space, and as the brown color of the seed enables you to distinguish it on the ashes, you can easily regulate the quantity according to your wishes, and sow more on places which require it. This first part of the section finished, the bed is raised, and laid down on the part just sown; the second board is then placed one foot from the first, and the intermediate space is sown; the first board is again raised and placed a foot from the second; and you will thus continue to sow as many spaces as there are feet in the length of your beds. You might make fewer spaces by placing the boards farther apart; but in such cases we have always observed that they are not so regularly sown, and that the little extra time bestowed by sowing on smaller spaces is amply compensated by a greater deliberation in sowing, which more readily allows you to perceive when there is enough seed, or where more is wanting.

Care of the Plants in the Beds.

The sowing finished, the seed should be covered with virgin earth or compost, mixed with tan if you have it, else with dry and pulverised horse dung; this coat should not be more than six lines thick; the plants will rise the sooner through it, which is a benefit, and besides, after they have appeared you can lay on another coat, which will invigorate them surprisingly, and you may repeat this whenever they appear to grow too high or spindling.

These successive coats or coverings should always be applied through a sieve, and when they are finished, fail not to water the bed well; the best irrigation would be a rain, but in the absence of this, we should imitate it by putting a nose on the watering pot with but few and very small holes in it, and holding this when we water the beds as close as possible to the plants.

Attentive cultivators cross the beds at every two feet of its length with packthread, to serve them as boundaries, watering regularly from one thread to the next, and it is very certain that they are well rewarded for this little care by the beautiful condition of their beds.

If the fly appears with the rising plants, a new coat of compost, in which you have mixed some salt reduced to an impalpable powder, will kill or overpower them; this is an advantage which those persons cannot enjoy who put several inches of earth on the seed at the time of sowing, and through which they rise with much greater difficulty.

Your plants will scarcely have appeared before the bed will be covered with weeds, but let them grow until you can be readily distinguished from the tobacco plants, make your children familiar with the appearance of these, and then by little rewards teach them to rid the beds of weeds—their little hands can pick them out better than we could, and when they once understand it, the beds will be more exactly weeded, if we overlook and encourage them.

Next teach them to distinguish the best plants, to observe where they are too closely sown, and to thin them by always removing the most indifferent, until each of those which remain on the bed shall only have a surface of about one square inch to grow upon; little girls are peculiarly handy at this employment.

That children may be employed for these purposes, you should be careful not to make your beds higher than two feet, nor wider than three.

And the hotter the dung laid at the bottom of your beds, the thicker you should make the covering of earth on which to sow your seed; sheep manure is said to be the best and hottest, horse litter the next and last of all, that of Cows.

The seeding being once finished the beds should be watered every day; that the plants may have time to rise slowly and become strong; if they are too much forced by heat they will grow up spindling; if regularly watered they will have better roots, and may be left a week longer on the beds; for this delay they will amply repay you, when they are transplanted.

Your subsequent attentions will be turned to keeping the enclosures of your beds shut, so that no person shall enter them unless to work there; never use any other than rain or river water, unless you have none but that of a well, in which case draw this day before you use it; every evening cover the beds with straw mats raised but a few inches, and envelop the whole with tilts; you should carefully exclude the cats, for they delight to lay upon the tender plants and warm surface of the beds. You ought to have rendered it impossible for the moles to enter, by having made the casing of the beds every where perfect; you should take care that the children do not waste or pierce your plants.

You will make war upon the fly and other insects by the means before mentioned; and never hasten the growth of your plants by any extraordinary means; the open air, light and sunshine should be allowed them whenever the weather will permit; always covering them again before sunset; and you should now lose

no time in preparing your grounds, finishing your trenches after filling them with rubbish, you will mark even the places which are to receive the plants; but in this case the holes are to be made with a large dibble that they may be filled with compost and the plants be inserted, using a smaller dibble. Six weeks give time enough, in which to make all of these preparations, and the plants ordinarily remain that long in the beds; finally, about the tenth day of May, they ought to be nearly two inches high, have five or six leaves each, forming a round top, their roots straight and strong; the whole plant well formed, will be six inches long, including the roots, these should be free from knots and have acquired a good length. When your plants are in this state, it is better to plant early than late, nor should you ever forget that the plants set out in the month of May are always best furnished with leaves, and that nothing can compensate a planter for the loss of this precious month, the month of May.

FOR THE AMERICAN FARMER.

EARTH BURNING.

Remarks on Mr. Aiton's attack on Earth Burning, &c.

To J. S. SKINNER, Esq.

Sir,—

It is with some degree of astonishment, as well as regret, that I have read in your 3d volume, No 47, the above mentioned piece. I cannot consent to pass it over in silence; and, although my abilities are small, and my experience too much on the two blanket scale, yet I have the presumption to think them quite sufficient for a complete refutation of Mr. Aiton's notions. This gentleman, by his style and manner of handling the subject, (plausible to a superficial view) will certainly shake the faith of some especially those who are about entering on the labour of preparing burned earth, and more certainly if they are destitute of chemical knowledge. I will give Mr. Aiton due credit for his introduction, and for all his remarks on Florin-Grass, and also for all his assertions as to plain matters of fact observed by him, *i.e.* as to the decline of the preparations of clay as a manure. I will also credit him with his remarks as to Mr. Wallace's bad choice, and Mr. Nasmyth's credulity; but, after these liberal allowances, I must say, there is scarcely one physical truth to be found in all the residue of his paper—a total ignorance is betrayed of matters of fact, as well as theory. Mr. Aiton can neither be a chemist, nor an agriculturist; he may walk in the trances of his predecessors, or follow the example which a neighbor may set—out it is clearly to be seen, that he is destitute of real knowledge on these points; and that he is better fitted when left alone, to bring the agricultural world to a chaos, than to make it a Paradise. These assertions of mine, I think I can prove to the satisfaction of my learned readers, or practical farmers.—The first assertion of Mr. A's is, certainly a random one—as to burned clay never cohering again unless acids are added: who has tried either experiment? As Mr. A. been obliged to examine burned earth even after it has been ploughed in for three years? How could he find it after a few good ploughings? What crop did he turn in to try to make it cohere?—was it Rumex acetosella (sour dock), or Oxalis, (sheep sorrel)? I ask my reader plainly if this does not bear the stamp of round conjecture—and if this is the beginning of arguments to overturn solid facts, what may the end be? Why did he not state his experiments like a philosopher? We need not be indebted to Mr. A. to tell us when it loses its fertility. The crop will proclaim this too plainly to be mis understood, and that in a short time comparatively—but by Mr. A's theory, it can never give out, for it will always be a dividing substance, till we are fools enough to plough in acids: Rumex Fœneatis? And this grand argument, after all, is rather Dr. against, than Cr. to his object.

Mr. Aiton now sets up his own theory of the fer-

tility of burned earth, (for he allows some); and what is it? One of the most repugnant to matter of fact that can be conceived. It reads very prettily on paper—but, let a man carry even one hundred 2 horse loads of sand, and plough it into an acre of stiff clay soil, and then carry a little of it, thus mixed, home with him, say a cubic foot, and examine the mixture; this will put his mixture theory all out of his head, without any farther observations—for a natural mixture, to be perceptible, will not be less than 500 loads to an acre to destroy the tenacity of clay, which quantity no man in his senses would try to imitate. Unfortunately for Mr. A's theory, burned earth acts best as a top dressing when grass is raised—then no mixture is made; simple scattering from the cart—at least this was my method, and good Timothy was produced, where it could not grow without aid. If I am deceived, my horses are also deceived—they are fit and strong to appearance, by feeding on it; and if so, let us with Horace's man, be allowed to enjoy our happiness: do not break in upon our delirium, for we have no sand in our neighbourhood to substitute—and I really fear that this article would, if applied, (provided it be not saline sea sand) awaken us to our senses!!

In the next observation, Mr. A. seems willing to allow burned earth something more than mere mechanical action; "some soot, some carbonic matter from the burned vegetable remains contained in the soil." This soot however cannot be found; for the fire is too intense to suffer any thing volatile to rest in the kiln—that the vegetable matter is carbonated is allowed, and of course destroyed; for carbon, tho' very capable of *devoiding* the soil, is inimical to vegetation—a seed will not germinate in it.—(See Humboldt's experiments on this.) I think Mr. A. very unhappy in assigning his small vegetating powers to these two articles, one he cannot shew, and the other is incapable. He also attributes stimulating qualities to them; this assuming the principle of sensibility and contraction, of the wooden vessels as in the animal circulation; a doctrine on which both Wethering and Darwin have laboured in vain. But if these articles do stimulate, why not stimulate like arsenic? Who can measure their powers? A mere guess of "very little" is a poor measure in philosophy! The degree can neither be seen, felt, nor measured—such undetermined stimuli are neither desirable nor terrific; perhaps they stimulate the imagination. Mr. A. after taking leave of the clay, and his mechanical doctrine, proceeds to examine the lime that may be in the soil, chemically,—the sand he leaves to its fate, though so much is always to be found, even in clayey soils. He denies that lime, though even in grit, will be deprived of its carbonic acid. The author of this paper has burned shells and earth together, till they were deprived of their tenacity and become sufficient for agriculture—and from his trial with limestone, he has no doubt of lime in grit being calcined sufficiently for agricultural benefit. Why did Mr. Aiton not try his mechanical doctrine on lime grit? Or does the burning of it make either soot or carbon? And yet the burning increases its stimulus, as he calls it, fitly for one—but does not cause it to divide clay any better. Our author is here fairly aground—two or three theories run out, and yet the soil not theoretically examined. As he has been so unhappy, I will tender him my ideas; and first—On Lime.—This, when any in the mass is calcined and rendered active, producing a fertile soil, in proportion to its increased solubility and decomposition by combustion; as it is a known fact, and admitted even by him, that burned lime stone is more fertilizing than when unburned, it would be needless to theorise on established facts. All I assert is, that most ground contains some lime, and by burning it with the earth it is brought into action. As lime is found mixed with clay, so is sand in much greater proportion, and more generally. This article I conceive receives great benefit from the action of fire—for there are few places where sand is pure as we may find by trying to make glass of it, a mere rude mass is produced, because, though so small individually, it is as liable to be a compound as a rock, always having plenty of iron to give it color—the other components,

* 40 bushels of salt weighing 56lbs. each, or together 2240lbs; if strewed over an acre of ground, or 4840 square yards, would destroy the vegetation thereon; but 20 bushels weighing 1120lbs have been advantageously sown upon an acre of wheat; see Essay on Salt as a Manure, page 26, published for C. W. Johnson, London, 1820. From these assertions we may conclude that if the several applications of salt on the surface of the tobacco-beds, do not in one season or year exceed one-fourth of a pound to the square yard, the salt will do no injury to the plants

whether made up of sand-stone, horn-blend, or what not, all cohere so as to make it unfit for vegetation, whilst a decomposition by fire or even long exposure has a contrary effect; for the nearer the elementary state is approached, the more suitable for the vegetable economy—and that for the plainest reason, because all attractions or cementations among themselves being removed, the vegetable attraction commands more readily the wanted supplies from them; indeed, every grain of sand should be considered as compound rock in miniature, and this will give an idea of the effect of roasting or decomposing it to the slenderest capacity. This law is observed in the first state of germination by the seed, the albumen of the seed being first decomposed by heat and moisture, the young plantule extracts from it the wanted elements more particularly oxygen—and I believe it a fixed law in the vegetable economy, that the decomposition of all bodies, mineral, vegetable, or animal, are favorable to their growth—while, on the other hand, all cementation is unfavorable; and hence we conclude, that soil to be most productive which undergoes, either by artificial aid or natural contents, a slow decomposition of its components. Almost all known manures favor this, and all might be divided into *fermentatives, fluxes, and pabulums*—the first comprising all vegetable and animal manure—the second, all minerals acting on other minerals or earths—and the third, the salines and oxides that have been formed by decomposition, some articles claiming a place under two classes—But I am straying from the subject. I will now touch on an article which chemists have not ranked among the components of soil—the oxides of iron, though they are nearly universal. It is worthy of remark that such soil as is colorless is incapable of vegetation; hence it must be an article of great value in the compound. By combustion the carbonates of iron are oxydized, and become a fine part of the productive soil—and some persons think that gypsum gives this change; for in every soil where gypsum is active, a change of color is produced—an unequivocal testimony of a change in the oxides of iron; every paint-maker knows the effect of fire in preparing ocre and Spanish brown—magnesia I pass over, it being rare, and its changes not being well known: whether calcined or not it is more or less favorable to vegetation; however, it is considered, when in any quantity, unfavorable. I come now to the grand article, namely, Clay: this is seldom pure, as may be known by its not forming alluvium readily with the oxides of iron, and is nearly always coloured with the oxides of iron, and sometimes with the sulphurets. Respecting its torrefaction I know very little experimentally, having always preferred combustion; but I am surprised to hear a gentleman of science say he does not understand the distinction! A cook can tell such a man, that the pig is roasted, but the wood is burned. Inflammables surely may be roasted. E. g. a cubic foot of wood will require at least another cubic foot of fire to bring it to a charcoal, but one single spark of fire is sufficient to render one thousand cords of wood into ashes—two very different things, and of extreme different qualities on vegetation: this may shew the most illicite the difference, though I do not consider the effect on clay so different—it is more in degree than quality. That clay undergoes combustion when properly managed is indubitable—for all the portion containing the first inflammable articles used for kindling may be removed, and still the fire be extended to the size of the Andes, if materials were present. If it undergoes combustion, it is certainly oxygenated, which I conceive to be a very material operation, and probably it may be afterwards capable of a farther absorption of oxygen—(See Humbolt on absorption of oxygen, by humus) soil.) Now if Thomson's experiments be true, that no seeds will germinate without this pabulum, viz—oxygen, of course, whatever carries it into the soil, or attracts it there, must be highly favorable—provided nevertheless (as lawyers say) it does not hold it so fast, that vegetable roots cannot command it. Bodies readily corrupting must part readily with their oxygen, tho' certain minerals might not.

The vegetable matter in soil being injured by combustion, I will only remark that it shews the great benefit that the clay, the sand, the lime, and the oxides of iron have received by combustion. I have already said, that I have produced good grass from burnt earth, on one or two acres. I must now add, that I consider its strength only as one-fourth of wood ashes, requiring seventy-five loads per acre, and in this labor of carting, burning, and scattering a due quantity lays the secret of a declension of the smoking kilns in Europe.

P. S. I recommend those persons who pretend that it is the vegetable matter in the earth that maintains the combustion, to go at least to some burning kilns, and some forming kilns, and examine that point minutely, and not trust to a thought in their closets; which may do for poetry, but not for farming.

S. V. S.

BY REQUEST.

Delegates from Agricultural Societies.

From the (S. C.) Southern Patriot.

MR. EDITOR,

One of the principal advantages obtained by the formation of Agricultural Societies, in various parts of the State, appears to be the interchange of opinions among practical farmers, collected from the different parts their districts. These benefits would be greatly increased if a Society was established, composed of delegates from the different societies now in our State. From an association of this kind, every prospect of decided advantages to the improvement of our system of Agriculture throughout the State, can confidently be expected; from the certainty that this society will consist of the most zealous, and intelligent practical men, from each district. Thus composed, we must conclude that great exertions will be made to excite and keep up that spirit of enquiry and emulation, so essentially necessary to produce improvements in every branch of the art of agriculture; and we would have communicated to all parts of the State, the results of the many experiments and interesting occurrences, which annually merit the notice of the observant planter. The State of Virginia, and others, have already established with prospects of much utility, the plan I now with deference submit to the attention of my brother farmers; and especially the members of those societies now in operation in our State. Without trespassing too much upon your paper, I merely add that after some attention to the proper place for the location of this association, the city of Charleston appears to have every advantage which can be required, without those objections which must apply to its location in any other city; and during the Charleston races would seem a suitable time for this meeting. I perceive with much pleasure, that the society of your city have renewed their exertions to promote the objects of their association; and I should hope to be successful in my attempt to form one constituted as I have briefly noticed, if this society so long established in our State, should view favorably and take a leading step to produce its formation. It is with satisfaction I add, that within the last two years, the attention of our planters and farmers are much more alive to the utility of such meetings than hitherto; and, unless I deceive myself, the present time appears to be favorable for the organization of such an association, as I have feebly attempted to recommend to the agriculturists of South Carolina. From the favorable notice you expressed relative to one of the subjects to which I ventured to call the attention of our agricultural brethren, could I flatter myself that this would attract your notice, I should then expect to see it handled in the same manner, with which the readers of the Patriot are presented with its views, upon political and domestic policy. As the projects of most men, not only in Medicine, Agriculture, and the various Mechanical arts, are too often appreciated by the standing in society of the projector, I trust the utility of the scheme proposed to advance the state of our Agriculture, will be judged by its intrinsic value, and not because it originates from a private citizen who has

never attempted to leave that station. The prompt and satisfactory manner with which your correspondent, "A South Carolinian," answered my enquiries, in regard to the culture of hemp, merits my acknowledgements, and is an evidence of that feeling so happily existing among those engaged in that most important occupation, the tillage of the earth.

The Editors of the newspapers in our state are solicited to give these remarks an insertion in their respective Journals, and oblige their fellow-citizen.

A COTTON PLANTER.

To the Editor of the London Courier.

Sir—I send you the following table, containing the yearly average prices of grain, in England and Wales, for the last seven years, ending Oct. 27, 1821, and also for the week succeeding that date, which I trust will be considered interesting to your numerous agricultural readers, and useful to the landlords of tillage farms, as a scale by which to calculate the reduction of the rents of their tenants.

I have carefully calculated this table from the weekly returns published in the Gazette, and I believe it will be found generally correct. Yours,

AGRICOLA.

Nov. 14, 1821.

Year ending, Nov. 2, 1821.	Wheat	Bye	Barley	Oats	Beans	Pease
Oct. 23, 1815	66 6	s. d.	31 6	24 5	37 9	40 8
Oct. 26, 1816	72 4	s. d.	32 4	25 3	36 4	51 6
Oct. 25, 1817	97 6	s. d.	58 9	42 0	53 2	51 0
Oct. 24, 1818	75 4	s. d.	52 7	51 7	55 11	55 11
Oct. 30, 1819	84 1	s. d.	52 7	51 7	55 11	55 11
Oct. 28, 1820	67 3	s. d.	41 10	35 3	44 10	46 4
Oct. 27, 1821	55 1	s. d.	32 11	25 11	32 4	33 8
Nov. 2, 1821.	55 1	s. d.	24 4	25 7	30 1	31 10

RECIPES.

For Indigestion, Weak Stomach, Head-Ache, &c.

One tea spoonful salt Tart. I table spoonful Cream Tart. ground together—a tea spoonful of this mixture in a wine glass of water for a dose—repeat the dose till you are relieved.

Burns, Gout and Rheumatism.

The efficacy of Cotton in cases of burns has been well attested. In attacks of Gout and Rheumatism Cotton carded and laid upon the part effected has likewise been found to afford a relief which could be obtained from no other application.

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AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunator nimum sua et bona vorint
"Agricolus." VINO.

OL III.

BALTIMORE, FRIDAY, MARCH 8, 1822.

NUM. 50.

AGRICULTURE.

From the Bath and West of England Society Papers,
Vol. X.

AN ESSAY ON MANURES,

BY ARTHUR YOUNG, ESQ.

(CONTINUED.)

CHAPTER IV.

Clay, Loam, Sand.

These substances have all been used as manures upon the largest scale. The application has however too often been made without a previous analysis of the soil on which they have been spread. Their effect depends on the deficiency of the soil. Clay has been found every where beneficial on sand; but sand not equally so on clay, because so many clays contain far more sand in their composition than farmers are apt to suspect. Nothing is more common than to hear of clays which, when examined, are found sandy loams; but they acquire their name of clays, because they are heavy for want of effective draining. Sea sand partakes of another class; it contains the muriatic acid; and if it be a shelly sand, it ranks with shell marle.

CHAPTER V.

Burnt Clay, Marle, and Earth.

Under this title is to be excluded the surface spit of old grass or waste lands, as that will be treated of in a succeeding chapter.

In various parts of the kingdom, as well as in Ireland, it has been a practice to burn clay, and clay marles, in large heaps, and to spread the ashes as manures. Switzer, about seventy years ago, was, I believe, the first writer who described the operation, and gave a plate of it. The nature and properties of burnt earth will vary with the portion of it which was calcareous, as that is converted by calcination into lime. Burning clay breaks the cohesion entirely, and reduces it to a permanent state of friability, which does not permit it to combine with any other substance; the sulphuric acid, which most clays contain, is dissipated; the iron and the clay itself are oxygenated, and a faculty in some cases to generate nitre is given. In its burnt state, also, it has a power of combining with the salt of urine. Burnt clays, when strewed on the ground, says Dr. Darwin, may contribute to vegetation, by their parting with their oxygen, in a fluid not a gaseous form; which, united with carbon, or phosphorus, or nitrogen, might supply nutritious fluids to the roots of vegetables. Its texture is extremely beneficial in dividing and attenuating the harshness of stiff soils, and rendering them more absorbent. These circumstances are amply sufficient to account for the benefit which many persons have derived from the practice of burning clay and marles. Mr. Leslie in Ireland, made great exertions in this way; Mr. White Parsons has burnt the earth out of ditches and drains successfully; and Mr. Boys, in Kent, has been long in the habit of doing it, paying his men sixpence per load of ashes for digging and burning.

CHAPTER VI.

Paring and Burning.

These are mechanical operations; and though nothing is directly added to the soil by them, yet the effects are in many instances very extraordinary, and

as such ought to be treated of here. There is no subject in husbandry about which so many misconceptions are abroad, or such misrepresentations hazarded, as on this.

§. 1.—The Nature of the Ashes resulting from this Operation.

We shall examine the result of burning
1st. Vegetables.

2d. Earths, including,

1. Clay,
2. Loam,
3. Sand,
4. Chalk,
5. Peat;

Under one of which heads every soil may be arranged.

These two articles will include all that generally comes within the sphere of paring and burning; for the animal substances in this case are too inconsiderable to demand attention, although the destruction of living animals, as worms and insects, is a main benefit of the work.

Paring and burning, says Mr. Kirwan, reduces the roots of vegetables to coal and ashes, and thus prepares both a stimulant and nutriment for plants.

Lord Dundonald observes, that "it is only from the ashes of fresh and growing vegetables that saline substances, or alkaline salts, are to be obtained; none can be got from peat or decayed vegetable matter. The saline matter produced in the process consists of vitriolated tartar; the alkali of the burnt vegetables combining with the vitriolic acid, which in different states of combination is contained in most soils. Vitriolated tartar, has very powerful effects in promoting vegetation." It promotes, as Mr. Senebier remarks, the decomposition of water. It will hereafter be seen, that hydrogen is a most active food of plants. Whatever, therefore, assists in this decomposition, must act a very important part in vegetation.

Mr. Fourcroy thinks, that the ashes of burnt vegetables, which have been supposed to consist of earth or clay, when the fixed alkali is washed from them, are principally calcareous phosphorus, like those of animal bones. Lord Dundonald is of the same opinion. This observation is a most important one, and ought to be pursued. In regard to the calcination of earths, that of clay and chalk has been already treated. The circumstances are numerous in which this operation may be highly beneficial.

Loam is composed of various combinations of sand, clay, and calcareous earths. The effect of fire exerted on sand, whether mixed in the form of loam, or by itself in a sandy loam, has not been sufficiently ascertained; and to draw conclusions from theory would be dangerous. If I were to reason upon the point, I should imagine that fire would add nothing to the nature of sand which could render it more fertile. The tendency of its operation would be to lessen its small degree of cohesion, from whatever cause arising, and might so far be prejudicial. Iron brought into combination with pure air, lessens the aggregation.* It is however a question demanding the combined efforts of the chymist and the farmer, not reasoning, but experimenting.

The effect of heat in this operation is remarkable. Wherever burning has been much practised, experience has demonstrated the necessity of removing all the ashes where the fires were made; and though careful farmers remove some of the uncalcined earth, still these spots manifest a deeper green in the crop than is observable in any other part of the field. The

* Davy.

general warmth diffused may probably have a greater effect than is suspected.

§. 2.—The Properties of the Ashes, resulting from Paring and Burning.

Vegetable ashes imbibe carbonic acid from the atmosphere.* They act in decomposition, and yield three-fourths in carbonic acid, and one-fourth a little inflammable; and last many years, by re-absorbing in winter the principles they had lost in summer.†

I imagine that the advantage of paring and burning some soils depends on the heat emitted from the burning vegetable fibres uniting oxygen with the clay, which forms more than the half of the slices of turf as they are dug from the ground.‡

That the ashes produced by paring and burning operate as a very powerful manure, cannot be doubted; since in nine-tenths of the trials that have been made through the wide range of so many counties, the crops which followed have been found to be very great indeed, and generally superior to those procured by means of any other manure. It is not the want of this success that has made so many enemies to the practice, but rather the contrary; the crops have been so large, and so often repeated, because great, that the soil has been left in a state of exhaustion.

This is a subject that demands the attention of the experimental chymist more than most others in the theory of agriculture. The examinations which have been made on the ashes of vegetables, and of earths, will account for a certain degree of benefit resulting from their use; but perhaps it does not fully account for the enormous crops which are gained by the operation of paring and burning. I have gone through not an inconsiderable course of reading, with a view to discover the theory of this fact; but my research has not entirely satisfied me. The formation of charcoal, sulphate of tartar, and phosphate of lime, with the decomposition of water, and the oxygenation of clay, added to the mechanical change effected by the fire, may certainly account for a considerable part of the improvement.

§. 3.—The Paring and the Burning.

The common practice is to pare from two inches on peat soils to half an inch on others; an inch is the most general depth.

Mr. Wilkes, of Derbyshire, has ploughed nine inches deep, and burnt the whole furrow with the assistance of coal sleet; manuring double the quantity of land burnt; but working an immense improvement on the space thus deeply burnt. I have seen other cases in which four inches depth was burnt with great success. In the fens of Cambridgeshire the paring is done with a plough, and the depth from one inch to two. On sand the paring should be as shallow as possible.

The chief attention paid in burning is to guard against too great a calcination; as the general opinion of those who have most practised this husbandry is, that the turfs should be rather scorched or charred than reduced to ashes. If burnt during a brisk wind, sands frequently vitrify, and will not afterwards in many years, if ever, be restored to a state capable of contributing any thing to the support of vegetables; hence it is a practice with those who are aware of it, prior to burning, to shake out, in dry weather, from the grass-roots, the greatest part of their substance with harrows. The heaps should always be small, and the fire be applied on the sheltered sides of them;—this method, in a degree, should be

* Priestley.

† Fabbriani.

‡ Darwin.

regarded in the burning of earths of almost every kind; as hereby alone a carbonized substance, called black ash, will be obtained; instead of a red brick earth, of much less fertility in the outset, and afterwards less susceptible of its principles as imbibed from the atmosphere.

In practice, however, as I have found more than once on my own farm, other circumstances will govern this point; such as, the weather in drying the turf, the depth to which pared, and the age of the grass; for these points have all an influence on the size of the heaps.

§. 4.—State in which the Ashes are applied.

Here occurs a considerable variation in common practice. There are two methods; one, to spread and plough it immediately; the other, to spread immediately, but to leave them exposed to the atmosphere some months before turning in. Mr. Wedge, on the thin sand soil on a chalk bottom of New-market-beath, had in one field a treble experiment; part was pared and burnt in the spring, and the ashes spread and exposed till ploughing in the autumn for wheat; the part pared and burnt late, the ashes left in heaps, and spread just before ploughing for wheat; the third pared, and not burnt at all, by reason of bad weather. The first was by far the best—the second the next—and the third beyond all comparison inferior. This seems to be a decided proof that the ashes absorb some matter from the atmosphere, which adds to their fertilizing qualities.

§. 5.—Application.

The circumstances which may with propriety be touched on under this head, are,

- 1st. Spreading.
- 2d. Depth of tillage.

The fact of the ashes improving more after having been for some time exposed to the atmosphere was probably the motive which induced Mr. Tuke, of York, to pursue on the wolds of Lincoln a practice that deserves attention. It is to pare along the centre of the lands a width sufficient for the heaps and burning; to move the sods, in order to plough the breadth; then to plough it; to make the heaps for burning on the land so ploughed; by which means all the land may be ploughed before the ashes are spread, and by this means kept on the surface: two material objects being attained; 1st, the exposition of the ashes; and 2d, they are not ploughed to the bottom of the furrow, but kept on the surface to combine with the land, and early sinking prevented.

Evenness of spreading is always a material object, whatever may be the manure.

The universal practice (except in one very singular instance, is to plough the first time very shallow. A multiplicity of observations have convinced the farmers in almost every part of the kingdom, that these ashes have a tendency to sink; and the aim has therefore been to keep them near the surface by shallow tillage, especially at first. The method of ploughing before they are spread, entirely obviates the necessity of such a practice.

§. 7.—Season.

As the work can only be done in dry weather, it is usually begun in March, in which month the N. E. winds are more drying than at any other time.—When the space to be burned is large, it is continued till September; and as the ashes are the better for exposition to the atmosphere, any crop may be put in that best suits the farmer's convenience.

§. 8.—Soil.

As the quantity of the manure thus gained depends entirely on the depth of paring, I pass on to the consideration of sods on which the practice may be recommended.

I have tried it myself on but two soils, on mountain peat, and on middling loam: on both these I had entire success. But the information which the respectable Society I address look for, must be derived

from more varied experience than it is possible for one person to pretend to, I shall therefore select a few cases which will embrace all the soils. These might be multiplied tenfold, but it would swell these papers to too great a length to offer more than a sketch.

Clay.

Mr. Bailey, of Northumberland, speaking from great experience, says, "that he has found this operation the most effectual remedy or preventive of the calamity of the red worm and grubs." The advantage of the practice is the certainty of full crops. "I do not," says he, "recollect an instance where the cultivator was ever disappointed; and it is this amazing fertility that has tempted many people to go on with repeated corn crops, until the soil was exhausted."

Loam.

On the inclosure of Stanwell in Middlesex, the allotments succeeded well under the perfect practice of paring and burning; and ill where the turf was ploughed without the application of fire.* In the former case the land was immediately fit for turnips, tares, barley, and clover. In the latter, the tough wiry bent heath, and dwarf furz, kept the land too light and spongy for any crops; and the farmer will be plagued for many years. The difference between the two methods is more than the value of the freehold in favor of burning. I have observed in various counties the same decided preference.†

In the inclosure of Enfield-Chase, (the soil, Loam, Dr. Wilkinson states, from experience, that paring and burning saves a very heavy expense; that the ashes possess most fertilizing qualities; that grasses are thus much sooner to be introduced; that it is a security against the ravages of the worm; and that so far from ruining its staple, the land has afterwards retained its fertility during five successive crops.‡

After nine years cultivation of land broken up without burning, it has been noticed, that on being laid down, young furz sprung up generally; burning is therefore absolutely necessary.§

Mr. Exter, near Barnstable, broke a grass field in an enclosed farm, one half by paring and burning, the other half by fallow. The first crop was wheat; the burnt gave thirty-five bushels per acre, the ploughed seventeen; the former was clean, the latter had much couch. Winter tares; the burnt were fourteen inches long, when the ploughed were only six; when eaten off by sheep, the second growth was in length as twelve to four. The next crop being turnips, and dunged equally, the burnt side was free from the fly. Barley succeeded, which was considerably better on the burnt part. Clover was next, which was closer eaten on the burnt part; and when laid to grass, was worth 5s. per acre more than on the ploughed half.

Mr. Dalton, of Yorkshire, on a dry loam on limestone and gravel. "It is a mere chimera to suppose that the soil is diminished by paring and burning; I have done it in the same field twice in the course of fifteen years, and could not discover it in the smallest degree."¶ On a light loam in Cornwall, Mr. Ans observes, "I was not singularly misled by speculative writers (who, I fear, have much to answer for) to think that burning caused a lasting injury to the earth. I followed three fields. I expected them to continue free from moss beyond the common period of its return. I found myself much mistaken; besides the crops failing, like those of some of my neighbors who had not burned, the moss returned as usual. Hence I and all my fellow-sufferers from following have totally abandoned this practice, and stick to the ancient one of burning."

"It has been the practice of a friend of mine, and his father before him, and of others before them, for near a century past, (the estate having been in

* And which will be the case 99 times in 100 universally.

† Middletons, Middlesex. ‡ Ibid. § Ibid.

¶ Communications to the Board of Agriculture.

the family for many generations) on their thin limestone land, constantly to pare and burn after ten years grass. The soil is so thin that the plough scalps the rock; yet no diminution of soil is in the least discovered."¶

Sand.

"Upon sand I have tried paring and burning, but unsuccessfully.‡ But Colonel Vavasour speaks of it favorably on this soil, and from experience. Quere, whether this difference of result did not hold to their courses of crops? The former speaks, in another case, of two crops of wheat, and one of oats. The latter, 1, turnips, 2 back-wheat, 3, seeds. If Mr. Wright looked on sand for corn, and not grass, no wonder he was unsuccessful.

Chalk.

Mr. Boys, near Sandwich, in 1783, pared and burnt twenty acres of loose dry chalk mould, four inches deep, on a hard chalk rock, value 1s. per acre, and sowed barley and sainfoin in March. His whole expence, barley crop included, £53. Produce sixty-six quarters of barley, at 26s.—£86, his profit £33, or the fee-simple of the land at twenty-two years purchase the then price. The sainfoin took well. In 1793, he writes to the author of the periodical work just quoted, "Should any of your friends, who so much condemn paring and burning, come into Kent this summer, I can shew them several scores of acres of wheat, barley, oats, and sainfoin, now growing on land which has several times undergone the operation:—the crops of sufficient value to purchase the land at more than forty years purchase, at a fairly-estimated rent, before the improvement. This will be ocular demonstration to them."

Peat.

Twenty years past a field of coarse rushy land was broken up; part pared and burnt, the rest not.—Whilst in tillage, the part burnt yielded crops uniformly better than the others. It has been down to grass several years; the burnt part is quite free from rushes, and covered with a good sweet herbage; the other part full of rushes, and the herbage coarse.‡

Mr. Simpson says, "I ploughed ten acres of moor, on a lime-stone bottom, in the part most free from ling, without burning, and I have had sufficient cause to repent it; for I have not had even one middling crop since; and although laid down with seeds, they have by no means so good an appearance as those sown the same year on similar soils after burning, although I have expended as much lime and manure on this as on any part of the farm."¶

Near Orton, on a peat moss, six or eight inches deep, on a stiff bluish clay; the only vegetable produce spongy moss, bent grass, dwarf rush, &c. wet and not drained; pared three inches deep, and burnt in the spring; then manured with thirty bushels of lime an acre; ploughed slightly for turnips, which were not hoed. They were worth £3 an acre; and being sown with oats, produced twenty bushels per acre.‡

Miss Graham was the first that pared and burnt moss in Monteth. Several acres that were burnt above forty years ago, continue to carry a close sward of green grass at this day, without a single pile of heath.*

"Of all the methods of breaking up peaty soils which I have practised or seen, the best mode is paring and burning. I have seen various methods on several thousand acres, but none ever equalled this.††

CHAPTER VII.

Of Yard and Stable Dung.

To attempt exhausting such a subject as this, would be to compose a volume. The time allowed by the Society can admit of no more than sizing the features which are most prominent.

* Mr. Wright. † Ibid. ‡ Annals.

§ North-Hiding Report. ¶ Ibid.

‡ Todd, Society's Transactions.

¶ Perth Report. †† Bailey.

Every writer with whose works I am acquainted, and at least ninety-nine farmers in one hundred, have written and practised on the common system and preconception, that dung is to be accumulated on hills or receptacles for a longer or a shorter time, till fermentation and potrefaction have brought it, after few or many months, and few or many operations of turning or mixing, to a certain state, in which it is ready and proper for applying to the land.

But there is another system of management, which of late has attracted a good deal of attention, and that is, to use it fresh as made. Now if this method should by experiment be proved right, it renders nearly useless all elaborate dissertations, by which we are instructed in the whole management of dunghills; since the result would prove that we ought to have no dunghills at all, or nearly none.

As this question must necessarily influence what ever can now be ventured on the subject, I shall take the liberty of making it the first object of enquiry.

In the first place, let us search for facts and experience. The late Mr. Duckett conceived, that the more dunghills are stirred, and turned over, and rotted, the more of their virtue was lost. Long dung he esteemed much more than the same quantity of short dung, which time had converted the former to.*

Mr. Patterson of Wimbleton, agrees with many garden farmers near him, that on a comparison of fresh dung with such as is well mixed and rotten, the result is very generally in favor of the long†.

Mr. Bocket, of Hertfordshire, a very accurate farmer, says, the fresher dung is used, the better even for grass.‡ He has found long dung, of only one or two months old, to be better, load for load, than black spit dung, for turnips.

The best farmers at Wittingham are of opinion, that laying dry dung on heaps is bad; it is much better to cart it to the land at once. Mr. Crust remarks, that those who make heaps, and consequently rot it much, never have such a return from their dung as others by a different management. Mr. Lloyd is much against hilling manure; always carrying it long from the yard; he has made repeated observations on the comparison, and is decided in the result. Mr. Clough leads dung directly from the yard; never hills it, which is utterly disapproved of.

Near Meaux in France, the farmers carry out their dung quite in a long strawy state, which they contend earnestly is much better than to leave it to be more rotted.¶

Mr. Johnson, near Northampton, has been for many years in the practice of carrying on to his land long straw dung, merely wetted by the cattle; and has found that the fresher it is laid on the land, the better the effect. He carries it out as fast as made; and if not done quick enough, observes a failure in the crop. He spreads such even on his grass in summer, and finds the effect great.

Mr. Robinson, near Salisbury, gives his own account. "I was long in the habit of drawing all my dung out of my yard, and laying it into a heap to be half rotted before I carted it to the ground; but by thus doing, when I pondered the subject over, I thought it not unlikely that I lost both in the quantity and the quality of the dung, and I was sure that I multiplied labor, and increased expense. To satisfy my doubts, therefore, I hauled the dung immediately from the yard to the field, where I meant to sow pease; and with a skim before the coulter buried this long stuff pretty well. I drilled the pease, and never backed a better crop, or had a cleaner and mellow season for wheat. This trial removed my doubts, and I have since followed the same plan with advantage; and have the satisfaction of seeing many others, formerly equally blind with myself, sufficient ly quick-sighted now to reduce their labor, and increase their crops. I have been confirmed in the practice by observing the conduct of a very able,

wealthy, and experienced farmer near Cluppenthorn, who has pasture, or dry meadow, arable, and down. He folds his arable, and dresses with the sweepings of the town, and leads all his long dung from his yards to his pasture grounds; and the greener the dung, the better he likes it. His persevering in this method, his crops of hay are doubled; and where cattle were never before attempted to be fattened, he now feeds oxen of two hundred stone for the Bath market."

Mr. Rogers, of Ardleigh in Essex, an extremely intelligent and successful farmer, has carried both long and short dung on for turnips, and for potatoes, and found the long best; and the experience has induced him to have much fewer muck hills than he formerly had. He carries so much directly to the land, that he has not one hill on his farm to ten that he had formerly.†

Mr. Chapman, of Hitchin, has observed, that about Baldock the farmers carry out their dung in a remarkably long state, without rotting, and yet they get as good turnips as any where.

Mr. Roberts, of King's-Walden, would always, on every account, carry stable dung long and fresh to the land. But he thinks that farm yard manure should be turned up once, yet not kept too long.

Mr. Shedgwick, of Rickmersworth, carries all his dung out for turnips, when he has finished his spring sowing. He is clearly of opinion that long dung is best; and if it could be carried from the stable, and ploughed in immediately, it would be by far the best.‡

I have collected other modern authorities.

Mr. Denton, of Norfolk, manured one part of a field, a layer of seeds, (the soil quite a sand) with fresh long dung, and the other part with turned over short dung; the difference was considerable, and in favor of the long dung. Mr. Bradfield, of the same county, carries his yard dung long without any turning or mixing, and spreads it about six weeks before sowing turnips.

Mr. Priest, upon land unkind for turnips, laid long fresh dung in the furrows of narrow ridges, reversed them, and drilled: the crop the largest turnips and the best in the neighbourhood.

When Mr. Everit has fallen short with his dung hills, and has taken long and fresh dung to finish with, he has had as good turnips as after the short.

Mr. Brown has carted long stable muck in March, for turnips, and had as good turnips as from short hilled muck; but gives fifteen loads instead of twelve.

Mr. Francis has tried long muck fresh from the yard, and it does as well as any; but not quite so quick a growth of turnips for the first six weeks.

Mr. Cubit has often carried out long fresh dung for turnips, and the effect has been very good especially if the land has been at all strong or wet.

Mr. Dyble has on many acres carted long fresh stable muck for turnips, ploughing it at once, and gained fine crops if the season proved wet, but not in a dry time.

Mr. Repton thinks long dung the best for turnips; however, he seldom uses it; but when he has, the turnips have generally been the best.

Mr. Johnson, of Norfolk, thinks that muck wastes by keeping to an unprofitable degree; and that the more it is turned over, the worse. He has tried long muck fresh from the yard for turnips, and gets as good crops by it as by any other, and the corn also as good.

Mr. England, Mr. Reeve, and Mr. Dursgate, have tried both, and think short muck best for turnips.

Every one of the preceding list are excellent and truly practical farmers, to whom I applied for their opinion on this point, so far as it was founded on experience.

"With respect to laying on manure," says Mr. Wilkes, "I have experienced that dung carried from the stable yard, at not more than three days old, and laid directly on the land, both in summer and in

winter, has an advantage of 20 per cent over that dung which is kept from nine to twelve months."

"I use long muck from choice; which I think far better than turning, mixing, and rotting it."†

"I have the authority of one of our most intelligent and experienced farmers for asserting, that half-rotted litter is of more advantage than it would be if kept at the farm until thoroughly rotted."‡

As the tendency of this system is to work almost an entire change in the rural economy of the larger part of the manure which is raised in most farms, I have been solicitous to multiply cases; and I think the Society will be of opinion, that this is a point which should be settled before any disquisitions on the management of dunghills should be offered. But it cannot be expected that the best attested facts should become the established rules of practice, until they can be explained and confirmed by a sound and rational theory. These facts must therefore be brought to the test of chymistry.

In the writings of Hassenfratz I find this remark: "The management of Picaud farmers is highly advantageous in the continual transport of their dung to their lands, rather than leaving it to be exhausted in the farm-yard, in order to be carried out at a fixed period. By applying the dung quite fresh to the land, its first fermentation is employed in heating the soil; the little alkali which it contains, instead of being dissolved in the farm-yard, and carried off by rain, remains in the land, and improves it, if alkali be useful to vegetation. The straw yet entire better divides the soil; its fermentation advances less rapidly, is less advanced when the seed is sown, and consequently the dung is in a better state for furnishing a great quantity of the chalky carbonic acid, which hitherto appears to be, with water, the principal aliment of plants." And in another work he has since declared his opinion, that carbon is the principal food; and water, I suppose, its vehicle. I need not remark to so enlightened a Society, that this gentleman is one of the greatest chymists at present in Europe, and that his doctrine meets the entire approbation of Mr. Kirwan.

A point of extreme importance is here implied, if not expressly asserted, that it is the same kind of fermentation which acts upon a small portion of moistened straw in the land, which effects the conversion of a large mass in a dunghill. Nor is it easy to conceive the destruction of the one, but on the same principles which destroy the other.

Dr. Darwin asks a most interesting question. "If the recrements of vegetable and animal bodies, buried a few inches beneath the soil, undergo the same decomposition as when laid on heaps in farm-yards? Although this is accomplished more slowly, yet it is attended with less loss of carbonic acid, of volatile alkali, of hydrogen, and of the fluid matter of heat; all which are emitted in great quantity during the rapid fermentations of large heaps of manures, and are wasted in the atmosphere, or on unprolific ground." "By using dung in a less decomposed state, though it will require some time before it will be perfectly decomposed, and reduced to carbonic earth; yet it will in the end totally decay, and give the same quantity of nutriment to the roots, but more gradually applied."§

That fermentation of vegetable bodies which is accelerated and enriched by the addition of animal matter, is an oxygenating process; the oxygen unites with the carbon and phosphorus, in the decomposition of these substances. "When vegetable substances are decomposed by fermentation, there is a quick union of oxygen and carbon; and the carbonic acid gas rises in vapour," and is lost from a dunghill; "but in mould turned over and exposed to the atmosphere, this carbonic acid is slowly produced, and is absorbed by vegetable roots."§

"Vegetable and animal matters cannot serve as

* Annals, vol. x. † Ibid. vol. xvii.

‡ Colmella says, that the very freshest ought to be spread on meadows. Lib. ii.

§ Lincoln Report. ¶ Young's Travels.

* Annals, vol. xxxviii. † Ibid. vol. xli.

‡ Herts Report:

* Communications to the Board of Agriculture.

† Rodwell, ib. ‡ Dr. Fenwick on Manures.

§ Darwin.

manures till they begin to ferment; nor are they of any utility when the fermentation is finished.[†]

There is good reason to believe, from many facts, that putrefaction is no way necessary to the nutritive power of animal and vegetable matter, but in so far as it diminishes their cohesion, or destroys their texture, and thereby renders them fitter for absorption; and as there is a considerable waste in gasses and ammoniacal and nitrous salt by putrefaction, it is of importance not to allow the putrefaction to take place at all, where it is not required to break the texture.[‡]

Without multiplying quotations, here is an ample fund provided by chymists of great eminence for the mind of an attentive reader to work upon. They are fully sufficient to account for the observations of the practical farmers inserted above. And this application of chymical to agricultural facts should make the farmer deeply reflect, before he continues a system of management in which much expense is expended in order to do mischief.

He who is within the sphere of the scent of a dunghill, smells that which his crop would have eaten, if he would have permitted it. Instead of manuring his land, he manures the atmosphere; and before his dunghill is finished turning, he has manured another parish, perhaps another county.

View all the farm-yards in the kingdom, and the management of the dung; in some it is better than in others; in some, water washes the manure away; in all, the atmosphere perpetually depredates.

I shall add no more on this elucidation, but proceed to the practical division of the subject thus considered.

§. 1.—Of the Nature of Dung.

All organized bodies are resolvable into hydrogen, nitrogen, oxygen, carbon, phosphorus, and sulphur.

The mixture of animal and vegetable matter, which is called dung, *per se*, or in union with water, earth, and the atmosphere, by nature or formation, contains all these. No wonder, therefore, that dung should be found an universal fertilizer.

§. 2.—Of the Properties of Dung.

The experiments are numerous that give us reason to conclude, that the chief articles in the food of plants are hydrogen and carbon. The trials are satisfactory upon the first; but carbon is given in so many ways united to hydrogen, that it is not often easy to decide what is due to one substance, and what to the other. Some degree of uncertainty attends all applications by water; for if the plants decompose it, it may be the hydrogen they absorb, and the added substance may only assist in the decomposition.

The grand property of dung is therefore to yield immediate food to plants. It further opens the soil, if strong; it attracts moisture; and by the fermentation which it excites in the soil, promotes the decomposition of whatever vegetable particles may be already in the land. Its effects have powerful progressive influences; for the production of a great crop of leaf, root, and stalk, by its shade and fermentation, leaves the land in better order to produce succeeding crops. It would be useless to expatiate on properties so well known.

§. 3.—Collecting.

The circumstances to be attended in the receptacles of yard and stable dung are few, but important.

The first object which I have attended to for many years, has been to spread a layer of earth over the surface of the yard; peat is the best for this purpose, with a portion of marle or chalk; in the want of this, turf, rich mould, scourings of ditches, and some marle or chalk; but not so much of either as to form so solid a bed as to prevent the penetration of the fluids, which should enter sufficiently to give a black color to the whole. There is no necessity for re-

moving this every time the dung is removed, as there are no advantages from fermentation in the mass till carried on to the land, no attention should be paid to prevent treading and pressing the mass. But as it is beneficial to have the whole as equal as possible, it is very useful that the stable dung should be spread over the surface, and not left to accumulate at the door. The same observation is applicable to the riddance of the fat bullock-stalls and the hog-sties. Heavy rains will at times, in spite of every precaution, cause some water to run from the yard; this should be received into a reservoir covered, and by a pump raised on to heaps of earth prepared to receive it. This is all the attention necessary upon sound principles. In summer, weeds of every kind that do not propagate from the root, should be early collected and spread over the surface, as well as leaves in autumn; and the foddering with straw, (if any) and the soiling on green food, should both be upon it, for all loose cattle.

§. 4.—Preparation.

None. No turning, or mixing, or stirring. But if circumstances of the richness, or quantity, or weather, have occasioned too much fermentation, or this is suspected, scatter every now and then a quantity of the same earth over the surface with which the yard was bedded, but not in layers. This may be so proportioned as to keep the mass from too much fermentation.

§. 5.—The State in which applied.

As it arises from the heap in such a strawy length as the time it has been accumulating will have permitted, a fermentation, more or less advanced, will have taken place from the mixture of vegetable matter with urine and dung, in proportion to the warmth of the season. Upon the principles just detailed, it is to be carried to the land as soon as circumstances of crops and convenience will permit. In a business of any extent this cannot be done exactly when the absorption of animal matter is enough to secure a due fermentation in the soil, but must be directed by other circumstances. The farmer is however not to lose sight of those principles which govern the operation.

§. 6.—Application.

This point demands attention. All dung should be applied to hoeing crops, to layers, or to grass land, and never to white corn; but this is more essential with fresh long dung than with that which is short. There will be many more seeds of weeds in it, several sorts of which are destroyed by a strong fermentation. To spread therefore long fresh dung on arable land, for crops not to be hoed, would be to sow the seeds of weeds without ensuring their destruction. The proper crops for which to apply yard and stable dung, are turnips, cabbages, potatoes, beans, and tares for soiling; and the season for putting in these crops are the Spring, Midsummer, and September. But the farmer is not confined to carry on his dung at the time of sowing or planting; it is, on the contrary, much better (and especially with long dung) to have it previously deposited in the land. For turnips, and for cabbages planted in June, the manure may be given any time in April, May, or June; for potatoes, it may be laid in March or April; for tares, in August or September; for beans, in November; and ploughed in ready for immediate planting or drilling early in the spring, without further tillage. If the dung is turned in for any crop so early that more tillage is to be given before sowing or planting, it should be ploughed in deep enough for the successive operations to be shallow and above it. Never let it be forgotten, that all animal and vegetable manures have a constant tendency to rise, as fossil ones have to sink. By decomposition they come in a fluid state, and are either absorbed by the soil, taken up by the roots of the crop, or dissipated in the atmosphere.

Upon this system, therefore, the dung which is made in the depth of winter may be spread in March or April, for potatoes; the next made, and what is not wanted for potatoes, may be taken out in success-

sion through April, May, and June, as corn, clover suits, for turnips and cabbages. That raised in July and August, will be ready for tares; and what is produced in September, October, and part of November, is ready for beans. The best time for manuring grass is immediately after hay is cleared from the field. By this or any similar application of the dung, the system of using long dung is rendered consistent with the cultivation of the farm, and the convenience of the farmer.

It is proper to remark, that the use of the skim coulter is essential to ploughing in long dung. By means of this admirable addition to any common plough, every atom may be buried. To leave any of it sticking out of the furrows, is to counteract the grand object of the husbandman, and materially to prevent that success which may be expected from the practice.

§. 7.—Quantity.

The right quantity of dung must be found from experiment. But at the beginning of any man's practice it will be proper to spread about the usual quantity applied in the old method. It has been found to answer in this proportion; and it is a circumstance extremely valuable, as it manures a much greater space of land than usual with the same stock of cattle.

§. 8.—Soil.

The idea of practical farmers is, that long dung is more applicable to strong than to light land; but Mr. Denton's experiment was on sand. Nor is there any reason, on an appeal to chymical principles, for fixing on any soil in preference to others for the application of this system of dunging. If, however, as it is generally allowed, it divides and loosens their constituent parts by its fermentation, it must necessarily have a more desirable effect on soils too compact, than on others already too light.

(To be continued.)

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TO THE EDITOR OF THE AMERICAN FARMER.

Thrashing or getting out grain.

Description of a cheap and efficacious implement made and used for this purpose by Farmers on the Eastern Shore of Maryland

White House, Queen Anns County, E. S.
Maryland, 17th Jan. 1822.

Mr. Skinner,

Enclosed you will receive a plan and communication addressed to me by Mr. James Ringgold of Kent, one among the best and most intelligent farmers of that county, on the subject of his improved rollers for getting out wheat. Should you deem it, as I presume you will, worthy of an insertion in your most useful paper, I will take the liberty to suggest the importance of an early publication of it, as this is the season at which the requisite timber ought to be got by those who may wish to furnish themselves with this implement. If what Mr. Ringgold has said respecting them needed any corroboration, I could add the testimony of my own experience, having made two, with which I have got out the greater part of my last crop, and found their operation to equal my most sanguine expectations. The most simple and economical thrashing machines yet introduced among us, are too expensive for the great majority of our farmers—these rollers are completely within the means of almost every one; and I think, all things taken into consideration, are likely to become more generally useful than the machines.

Yours truly,
EDW. TILGHMAN, 3d.

EASTERN NECK, Feb. 10th, 1821.

Dear Sir,

I have received your letter of the 2nd inst. requesting me to furnish you with a particular description

[†] Senebier.

[‡] Dr. Pearson's Notes on Cullen.

of my wheat rollers—their dimensions, manner of making, and apparatus for boring them, with which I cheerfully comply; and as I suppose it would be impracticable to give you a satisfactory description on paper without drawings, I will attempt these, although I fear they will be executed in so clumsy a manner, as scarcely to make my explanations more intelligible.

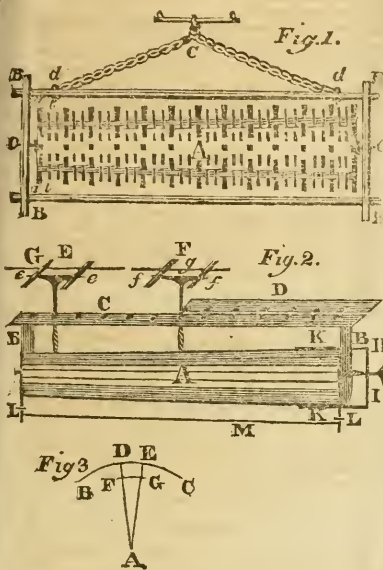


FIG. 1. Represents the roller complete. A is a stock 18 inches diameter at one end and 16 at the other. 9 feet in length, not hewed into an octagon as usual, but left round, in the natural shape of the tree, from which the stock was taken, after the bark was removed; in this shape the stock is not so liable to crack as if hewed. BRBB is the frame of the roller, which ought to clear the longest pins about 2 inches when turning. C is the chain by which the horses draw, it is fastened to the small iron hooks at *d d*, and has a round link in the centre to which a swingle tree may be attached—*c c* are the gudgeons, with an iron ring one inch wide in the rim and three-fourths of an inch thick fitted on each of them and placed in contact with the ends of the roller, thus limiting the friction of the frame against those ends to the surface in contact with the rings—*a a* are eight rows of large pins 9 inches apart in their respective rows, 3 inches square at the butt ends—the auger holes in which the pins are driven should be 2½ inches in diameter and 5 inches in depth—*b b* are 8 rows of small pins, the holes for which are bored with an inch and a half or an inch and a quarter auger in a center line between two rows of the large pins, at ½ the distance of the holes of the large pins, so as to make in each row of small pins double the number that are in one row of large—These small pins are cut one and a half inches shorter than the large pins, so that when the roller lies upon two rows of large pins the small ones clear the ground ½ an inch, and the weight of the roller does not press upon them, which they would not bear; but on a floor of wheat I believe they get out as much grain as the large pins.

FIG. 2. Is the simple stock of the roller with the apparatus for boring the same, and lining or marking on the pins, with great exactness, where they are to be sawed off, thus securing a proper graduation. A,

is the stock, which before the apparatus is fixed must be lined with a point line from one end to the other, which is to be done as follows: find the centre at each end with a large pair of compasses or dividers, then describe circles as near the circumference of the stock as possible, fix the stock so as to keep it from rolling, take a plumb line and let it hang from the upper part of the circle at each end until it strikes the centre of the circle, then where the line touches the upper or lower part of the circle make a plain puncture with the compasses; these punctures made at each end will enable you to divide the circles into 16 equal parts, and distinct punctures should be made to shew every division; that a painted line may be drawn tight from the corresponding punctures of one end to those of the other and struck, so as to divide the stock plainly into 16 equal parts, by 8 lines for the large pins and 8 for the small ones.

The apparatus is then fixed for boring BB are pieces of inch plank 4 inches wide; the length must depend upon the length of the spiral part of the augers EF, so that the piece of plank C, when nailed upon the upper ends of B and B should clear that part of the auger when it is entered to bore. The pieces BB, are nailed with rivet-headed, wrought nails at the lower ends to the centre of each end of the stock, so as to turn around at pleasure; and gimblet holes are bored in them to admit a 10d nail about an inch from the circumference of the stock, for the purpose of tacking in nails to make them stationary when necessary. C, is an inch plank 4 inches wide and 4 inches longer than the stock; it is nailed at each end upon the upper ends of the pieces BB; and notches are to be cut in one edge of it the size of the shank of the augers with which you intend to bore the pin holes, for the purpose of keeping the augers straight and true in their place and direction, as well as to regulate the distances of the holes to be bored; but these notches must be made according to the distances that the small pins are intended to be apart, and when boring holes to receive the large pins the auger may be put in every other notch. D, is a counter piece of C, but only half the length, it is to be placed outside of the notched edge of C, and when the notches coincide or fit together, gimblet holes should be made through both pieces to receive nails that the augers may be prevented from getting out of place when you work them, with the long lever G. When using the short lever *g*, or boring with the inch and a quarter or inch and a half auger for the small pins it is unnecessary to use the counterpiece D, as these augers may be kept in the notches of the piece C by hand; but the notched piece C is necessary for the straight boring of each pin hole. How to make these notches is the next thing to be explained—strike a line on the pieces 1½ inches from the edge C, which must be perfectly straight; then make punctures according to the distance of the small pins from one end of C to the other; bore holes in all these punctures with a three quarters of an inch auger, and then saw pieces out, from the edge to the holes, of the full size of the auger holes. The notches having been made, the part C is to be nailed on the parts B as before described, and to correspond with the point line made for the purpose of boring the piece with the three quarters of an inch auger, there must be lines struck on the parts BB, as far as the circumference of the stock A, in order that you may more easily fix the frame BCB, at the lines on the stock A intended to be bored, and it may be thus fixed by tacking in the 10d nails before mentioned, when the lines on BB correspond to a line marked on the stock A. E, F, represent a two and a half inch auger, fixed in different ways for boring; E, with the long lever G; and F, with the short lever *g*. This manner of fixing the auger, is an original contrivance of my own, it saves a great deal of labour in boring a roller, and requires to be particularly explained. I have used the common pin rollers for 17 or 18 years past, and when boring the large pin holes with a 2½ inch auger, have had to employ two able hands to spell each other, as one could not bore constantly. But with the long lever, as I now fix it, a boy of 6 or 7 years old can bore, making no other effort than that of walking around the stock, as a

horse does at a cider mill, holding the extreme end of the lever *t*, in one or both hands before him; and one able hand can turn this two and an half inch auger, by the short lever *g*, as arranged at F, with as much ease as he could an inch and quarter auger, by the usual handle. The levers should be applied to the auger in the following manner: take two pieces of seasoned oak, or almost any other kind of hard timber, 6 inches long, 3 inches broad, and 2 inches thick; bore a hole about an inch from one end of each piece, with an inch and quarter or inch and half auger; and as near the other end of each piece bore a hole with the two and half inch auger. These pieces are then fastened on the ends of the handle of the auger, E, F, as at *cc* or *ff*, by the small holes—and the levers G and *g* go through the large holes at the other ends; these pieces are not, however, to be fixed above the handle of the auger, as might be supposed from the figure, but they are to be placed horizontally on one side of the handle.

H is a three quarters of an inch auger fixed in a frame, for the purpose of boring the gudgeon holes true, which is very important, to facilitate the turning of the roller, and to prevent the end pieces of the frame B B B, Fig 1, from wearing. K I K represents the fixture; K K are two slips of inch plank, two inches wide, and four or five feet long, each slip lined upon one side in the centre. After the pin holes have been bored, the apparatus used in that operation is taken off, and these slips are tacked on two opposite boring lines of the stock, with an end of each of them projecting far enough from one end of the stock to clear the spiral part of the auger, when upon these ends the slip, I, is nailed, which is to be of the same width as the others, with a notch in the centre to suit the shank of the auger. This frame will keep this auger perfectly true in its direction until they come in contact, when the frame may be taken off, and the hole be bored as deep as necessary for the gudgeon, and the augers will not deviate from the course directed by the frame.

L, M, L is a contrivance to have the pins of the roller exact and true. After the stock is bored and the gudgeons put in, the slips of plank L L, three inches wide, and of length according to the intended diameter of the roller including the pins, are bored with an auger the size of the round end of the gudgeon near one end of each slip; these slips are put on the gudgeons, so as to turn around in contact with the ends of the stock. Half the intended diameter of the roller at each end, including the pins, is then laid off from the centre of the holes in the slips towards the other ends, for the large and small pins to be lined by after they are driven in. In laying off this half diameter, notches are cut with a saw about half an inch deep in the upper edge of each slip to suit the length of the large and small pins; and as every row of pins is driven in, the slips are turned around to the row, the point line M is placed in the notches at each end to suit either the large or small pins, then drawn tight and struck on the pins; this line thus made on the pins shews where they are to be sawed; they ought to be sawed square, not with a bevel.

FIG. 3. Shews the manner in which a roller is to be graduated to the circle of a treasuring floor. My floors are 90 feet m diameter, and the fig, is made according to this size; but the principle is the same with respect to a floor of any other extent. From the point A describe a part of a circle B C, with a line or strip half the length of the diameter of the floor; measure the diameter of the roller at the large end, including the length of the pins, multiply the diameter by three, the proportion of a circle to its diameter, lay down this product, being the circumference, on part of the circle B C, as at D E, to shew the space passed over at each turn of the roller, then draw the lines from D and E to the centre A, mark the length of the roller from D to F and from E to G, then measure the distance from F to G, as it will correspond with the circumference of the small end of the roller, this divid'd by three will show you what should be the diameter of the roller with its pins at this end. Thus, if this fig. was laid down at 20 feet to the

inch, a roller of the dimensions in fig. 1, should have a diameter of 3 feet 6 inches at one end, and 2 feet 8 inches at the other, to work on a floor of 90 feet diameter. The circumstance of a roller being properly graduated to the size of the floor, is all important as respects the facility of its turning, and the wear and tare of it.

If I had foreseen the great length of this reply to your letter, I fear I should have been discouraged from answering it, and I still fear that your patience will be exhausted in reading my deficiency puzzled to understand some parts of it. However, as I have finished it, I shall not regret my labor, if the information now given should prove useful to yourself or other farmers; and the only condition upon which I give it is, that if I should have any more applications for written information upon the subject of this letter, I may take the liberty to refer applicants to you.

Yours, with respect,

JAMES RINGGOLD.

P. S. I had forgot to mention the advantages of my present rollers over the common pin rollers, which I formerly used—One of them will get out as much wheat in the same time, with two horses and two hands less, as two of the old kind—One of them with two or three horses, for I sometimes use two and at other times three to a roller, will get out 70 to 80 bushels per day, in time to fan and put it in the granary.

J. R.

From the Massachusetts Agricultural Repository and Journal, published by "The Trustees of the Massachusetts Society for the promotion of Agriculture."

Remarks on the most suitable season of the year for the cutting of TIMBER, with reference to its Durability.

It would seem surprising, say "*The Trustees*," that a question so easily decided by a few experiments, should in this age be still a subject of dispute. Yet so it is, and although a careful collection of facts, one would suppose, would readily settle the dispute, (for upon such a subject above all others, facts alone must be resorted to in preference to theory,) yet it is true, that in this age, in which science has attained to a higher degree of certainty and perfection than in any former one, this most interesting question remains the subject of conflicting and opposite opinions both in Europe and America. The vast importance of it, connected as it is with the durability of our houses, and utensils of wood, and the still if possible more important question of the durability of our ships, one would have hoped would have led philosophers to ascertain by questionable experiments the true principles, and to put the question at rest.

Commodore Porter has published a very elaborate essay on this subject, and Col. Pickering has with great ingenuity and characteristic frankness, replied to the Commodore, and collected a great mass of facts on the subject, which appears to us not only to impugn the opinions advanced by Commodore Porter, but to settle the question in the minds of every man, who is acquainted with the habitual caution and exactitude of Col. Pickering in relation to questions of this sort.

It had been our intention to introduce both Commodore Porter's and Col. Pickering's views of this subject in the present number of our Journal, but the space necessarily occupied by

the official accounts of the proceedings of this society, would not permit us to accomplish what we had proposed.

It may be thought by some persons, that we had better curtail our accounts of our shows and of our premiums, and give place to original communications on such interesting topics.

It should however be recollected, that, *after all*, the interests of agriculture and of our country are best promoted by diffusing through the whole mass of the people a taste and zeal for the promotion of agriculture generally, rather than to confine their attention to the speculative examination of any one point however interesting it may be. The question above referred to, though highly important seems rather to be more calculated for a philosophical or scientific journal, than for one purely agricultural. It seems to us to be of greater importance to show, that while Dr. Deane, thirty years since, spoke of 100 bushels of potatoes as the average crop, on indifferent soils and under ordinary culture and mentioned 300 and even 400 bushels on an acre with an air of surprise as the product of the best Irish culture of that plant, we are enabled to prove, that not one only, but many of our farmers are able by the recent spirit infused into the agricultural classes of society, to produce from 400 to 500 bushels of that root per acre—and that this has been done not by amateur cultivators of fortune, regardless of the cost, but that the natural and common tiller of the soil have out-stripped those who regarded out expense in the attainment of their ends. The same remarks applied with still greater force to the other articles of root culture, and it is now seen that the Essex and Worcester farmers take the lead in the culture of the carrot, the Mangel Wurtzel and the Ruta Baga.

No man can doubt that considered in relation to Agriculture only, these proofs of success in that art should have the preference, to the disputed, though highly important question as to the best time of cutting timber. But though we contend for this opinion, we are by no means of the sentiment that the other should be neglected, and therefore while we regret that the limits of this number will not permit us to give at large as we intend to do, the arguments of Commodore Porter and Col. Pickering on the best time of cutting timber with reference to its durability, yet we with pleasure devote the small space left to us to the following interesting letter from Mr. Poor, on the same subject, and fully supporting the hypothesis, and corresponding with the facts advanced by Col. Pickering.

Newburyport, July 31, 1821.

GORHAM PARSONS, ESQ.

DEAR SIR,

I heard you observe the other day, that every kind of information which would in any measure serve to advance the agricultural interest of the country, should be made public, and every friend to agriculture, should do all in his power to have it generally diffused. It has since occurred to me, that the following facts be of some service. If you are of that opinion, you are at liberty to communicate them in any manner that you may think proper.

The following are the facts alluded to, and

are within my own knowledge and observation, viz. —In all the fall of 1812, my grandfather (then ninety one years old) in conversation with a respectable mechanic on the subject of the durability of timber, urged with much earnestness, the great importance of cutting or felling the trees in the old of the moon in the month of March, the mechanic with as much earnestness, but with great respect for the old gentleman, insisted: "but the month of June was the best month, that timber cut at that time and well season d, was worth double that cut in March, it was to be sure much harder work to cut would endure longer, and for any use on a farm, particularly ploughs, carts, harrows, drags, &c. it was incomparably better; and he further observed "that he was once of grandfather's opinion, not from his having made any actual experiment, but from having been told from his youth, that March was the proper month for felling timber trees, that from accident he at first had an opportunity of testing the difference, and on further attention to the subject, he was fully confirmed in his present opinion." My grandfather still adhered to his opinion, but was desirous of making an experiment by selecting two white oak trees, size, situation, general appearance as to age and health, and the soil, as near alike as possible, that was done at the time, the fall of 1812. In the month of March following, in the old of the moon one tree was cut, the timber carried to the mill and saw d into suitable timber and scantling for an ox cart, and put up to season in the open air, the middle of June the other tree was cut, carried to mill, and sawed into timber, &c suitable for an ox wagon, and put up in the open air to season, and treated in every respect as that cut in March. In the fall of the year, both parcels of timber were housed, and in the spring following, an ox cart was made from one, and an ox wagon from the other parcel, both painted and the work alike in all respects. They were used principally for hauling stone, and if there was any difference in the service to which they were put, it was that the June timber had the hardest use, they were both housed in winter, and commonly remained out in summer. At this time the one made of timber cut in March, is very much decayed, the raves defective, much bruised, and a general appearance of decay and of being much the worse for wear, while that made of timber cut in June, is perfectly sound, and has not given way or started in the joints, or in any respect appears half as much worn as the other, although as before observed it has been put to harder service, and it is a fact that in this instance the June timber is very much harder, and is not so much bruised as that cut in March. I send you a piece of plank from each parcel, and you will at once perceive that a striking difference is in favour of that cut in June, the mechanic who induced this experiment, says timber cut in June, must be sawed soon after it is cut, and near the size in which it is to be used, for it is much more difficult to work than timber cut in March, but it will not powder-post or crack in the sun; he is also of opinion that it would be far more durable as ship timber, but this experiment goes only to prove its superiority for farm use, and I am fully satisfied that it will be for the interest of farmers to use for their carts, wagons &c

timber cut in June, in preference to that cut at an earlier period. I should like to know, why June is the best time, and how it happens, that even accident should not have done away the long established opinion, that timber to endure and be serviceable, must be cut in March. Should the preceding facts be acceptable my object is obtained.

And I remain your obedient servant,
BENJAMIN POOR.

From the same Journal.

Importance of a common language in Agriculture, remarks on the present confusion in the names of Grasses.

The following letter from a very intelligent and highly respectable cultivator of Maryland, expresses a sentiment, which we, "The Trustees of the Massachusetts Society for the Promotion of Agriculture," have often endeavoured to impress in our Journal; to wit, the great importance of having a common language in agriculture as well as in every thing else. There is nothing so unsettled as the familiar names of grasses and fruit trees, and indeed of the varieties of the potato, and many other cultivated articles.

We do not agree with Mr. Forman, that in Europe there is more of this confusion of names. So far from it, the men of education all understand each other when speaking of grasses or fruit trees. The only perfect mode of ascertaining precisely, whether we do agree in our application of names, is the one which Mr. Forman has wisely adapted, that of sending reciprocally, specimens of the plants, together with the name, or names, if more than one, by which they are known in our vicinity. We have no hesitation in saying that one of the plants sent on by Mr. Forman was the *Phleum pratense* of botanists, known also by the names of meadow catstail, according to Nicholson's Farmer's Assistant: Timothy Grass. Her is Grass, Foxtail. With us it is called Herds Grass, in England Timothy, in the middle states Timothy. Col. Pickering was perfectly correct therefore in giving the synonyme of Timothy to the *Phleum pratense*.

The other specimen which we saw was the *Poa Pratensis* of botanists, so known from Sweden to Spain, and from Maine to Carolina. Its most usual vulgar name *herb* is Red top, a natural allusion to the colour of its heads before flowering. We have heard it called also Rhode Island grass. Mr. Forman's communication is informed us, that it ever had obtained the name of *Herds Grass*, to which it has not the most distant resemblance. We would observe, that the application of these names in New-England, to those two grasses, is of very ancient date, having been published with us more than half a century ago, and so far as we know they have been uniformly so applied ever since.

Another of the grasses sent by Mr. Forman was the *Avena Elatior*, tall meadow oat grass, 'tall oat grass,' in Farmer's Assistant, 'oat grass,' wild oat, and Nicholson says sometimes called 'orchard grass,' which it very little resembles, and which is as well known in both Great Britain and America, (though not much cultivated in either,) as any grass whatever.

The fourth grass sent by M. Forman is the *Dactylis Glomerata* of botanists, properly 'orchard grass' of England and America, or 'Cock's foot,' as some have it. We think it would be more convenient to unite in calling it 'orchard grass,' as its English title. Sir Humphrey Davy's Agricultural Chemistry, and Mr. Muhlenberg, will enable us to understand one another when we speak of *Dactylis Glomerata*; but 'orchard grass,' would be more convenient as a common name. It probably derived this familiar name from its being found of the shade of trees, often found in orchards and thriving better in such situations, not than it does elsewhere, but better than almost any other grass would. We have ourselves, some hundred tufts of this grass which thrive and flower annually under the *Tilia Europæa*, a European lime tree, which has the densest foliage of any tree we have, and which have flourished there for thirty years past, while no other plant except the mosses have been able to sustain itself under such disadvantages.

Rose Hill, August 3, 1831.

[To John Prince, Esq. one of the Trustees of the Massachusetts Agricultural Society.]

Sir,
In this package you will find some varieties of our cultivated meadow grass. I am influenced by the strange confusion respecting their names, and my attention has been more closely drawn to the subject by the remarks of Mr. Pickering, who confounds the herds and timothy.

In Europe, the boasting Europe, we are not surprised to learn that in adjoining towns and counties, the most common vegetables are recognised by different names, but in this country, we have not, and I devoutly pray we never may have any thing like provincialism, in language or habits.

The seeds and specimens are perfect, being all gathered by myself, and I beg of you that you will exercise your industry to give to the public through the medium of your valuable repository, not only a botanical description, but the true vulgar names of these grasses.

I am,

Your obedient servant,
T. M. FORMAN.

FOR THE AMERICAN FARMER.

On the best Rotation of Crops.

Garlick banished by the Oat Crop.

"We may count upon all the arable land of farms, yielding a yearly income, without any part lying idle in rubbish old field: not as which is the case at present, but as believing that perpetual alternate crops from the whole ploughable land, will insensibly become very general, as the spirit of improvement shall, though slowly, advance on the grounds of reason and experiment."—BONNIER.

Sir,

February 18th, 1822.

Although I have attempted to prove that a six, is inferior to a four field tillage, it is not because I prefer the latter as the best rotation. If you will pardon my egotism, you will perhaps better understand my theory, if I relate my various experiments.

When in the year 1789, I commenced farming upon my present residence, I found my

land which was originally of first quality greatly impoverished, gullied, and without an acre of grass to assist me; and to complete my difficulties, what little wheat did grow, was of the lowest quality, being one tenth garlick. Much good advice was given to me how to eradicate this nuisance. And it seemed to be a general opinion among learned and wise farmers, that if I would give my lands a full ploughing, just deep enough to expose the bulbs to the action of the frost, I might rely upon getting rid of the enemy. The experiment was fully and repeatedly made, but without any perceptible success. I had yet another difficulty, my land was in three fields which does not allow time for the growth of artificial grasses. Oats is known to be the most inveterate enemy to garlick, why or how, I do not pretend to say, nor can I say why our common Red Cedar is an enemy to all our thorn hedges, to our Wild Crab; to our soil a service, and to our Quince trees, the fact however is so: Yet I do know from a variety of experiments that neither spring Barley, spring Wheat, or spring Rye, have equal, or indeed any perceptible influence upon Garlick. When therefore I commenced a four field rotation of corn followed by Oats, Wheat and Clover, I imagined my plan perfect. A few years however convinced me that I had yet much to learn. The Garlick indeed disappeared, but so did the white Clover; and one field in Corn, another in Oats, a third in Wheat, the fourth field in Clover could not be both mowed, and pastured, and this rotation after a full round, was given up as unproductive and impoverishing. But by the experiment I was fully convinced, that when Clover was sown upon the wheat, my land was not injured by the *Oat Crop*, and to ascertain which, it was my invariable rule to omit seeding Oats upon strips throughout the field, and ten days after, or a week before harvest, invite men of judgment and observation, to ride over and examine the ground, to point out if they could, the strips which had not grown Oats—No difference in the wheat was ever seen, nor could the strips be discovered, except that in those missing places there was more garlick. From frequent observance of this fact, I formed the opinion that the ground cleansed from garlick and grass, and the Oat Stubble ploughed under, made ample amends for any injury done by this reputed exhausting crop.—With this impression, and determined to have grass and hay, to give food for my stock, shelter to the land, and manure to improve it, I divided a moiety of my farm into five fields, leaving the other half to be cultivated in three fields. It is singular that Mr. Bordley, than whom no man in the United States had read more upon the subject of Agriculture, or who was more sincerely desirous to improve our husbandry should not in the many rotations recommended by him, have even suggested a five field course: but he wrote more for the neighbourhood of a city than for persons distant from a market, more to improve a small farm, than to make money from a large one: he had only foreign writers to consult, and without paying the necessary attention to our climate and population, you find him discouraging the culture of Corn, and substituting the inferior crops of England.—My five field tillage commenced with

Wheat upon a clover soil, Corn upon the Wheat stubble, Oats and clover upon the stalkfield.—Upon the first round, never was a man better pleased with an experiment, which appeared to be the *ne plus ultra* of rotation. From 18 to 22½ bushels per acre was the produce of my wheat-fields—corn excellent, oats and clover good as I could ask, but the second course completely changed the scene. Blue grass obtained such an ascendancy that my wheat was inferior to my three-field tillage; yet unwilling to relinquish my hobby, I procured the most perfect ploughs, and with excellent ploughmen, turned my land in a style which obtained general admiration. With a four feet, six inches diameter framed roller (the hint for which borrowed from the Honorable R. Goldsborough, of Talbot,) drawn by four quick and stout oxen, this field was neatly levelled, and at a proper time, the harrows performed their duty upon it. With small, light ploughs my wheat was covered about one inch deep, and the whole levelled with light harrows, fearful to disturb the sods; upon observing some symptoms of blue grass, careful hands with garden rakes and each a wheel-barrow, collected every stone, weed, and sprig of grass. With this field my neighbors found but one fault, it was too smooth. Five years before, it had grown twenty two and a half bushels to the acre, without any uncommon care, since which crop the land had been greatly enriched by the application of home-made manure, in various forms, and yet after all my care and trouble, I did not cut six bushels to the acre—in the season there was not any thing remarkable, and the falling off could only be accounted for by an overwhelming crop of blue grass. The loss of a crop was not my greatest misfortune, I lost character, and every steady two and three-field farmer, cracked his joke upon “the failure of F—’s five-field rotation and oat seeding plan, which they always knew was the destruction of land.” You may call it perseverance, obstinacy, or vanity, but I determined to improve upon the sentiment which applauds the man who grows two heads of wheat where only one grew before. My motto is to double my quantity of grain, without increasing labor or expense. The farmer who doubles his crops, although at a double expense, is no doubt entitled to great applause as a public benefactor, because any district so improved, can support a more dense population, but it is not with this view, my remarks are made.

I aim at a rotation simple in its execution, productive in its results, and requiring the least labor. Whether I have in any degree succeeded, you will have an opportunity of judging from my next communication, in which I shall endeavor to redeem the pledge claimed in your No. 39. I am your obedient servant.

F.

JOHN S. SKINNER, Esq.

FROM THE ALBANY REGISTER.

A Machine for cleaning Clover Seed.—We have been called upon to view a machine or mill for hulling and cleaning clover seed, invented by Mr. John Bolton, of Warren, in Her-

kimer county; and for which he has obtained a patent. It is of simple and cheap construction, and in operation will require a water power equal to that which is required for a run of stone. It may be erected by itself, or applied to the spindle of another mill, in which case it will not cost more than 30 or 40 dollars. With an application of the power above mentioned, it will clean one bushel of seed in an hour. This machine has been tried, during the last year, and found to answer the purpose contemplated by the inventor, whose ingenuity and enterprise deserve the patronage of the Agricultural Interest.

—O—
From the Plough Boy.

Concerning Fruit Trees.

Several communications have appeared in the Plough Boy, as well as publications at Baltimore, recommending the use of Tanner's Bark round the trunk and roots of trees as a preservative against insects. In 1810, I placed round the trunks and roots of about 1000 trees of different kinds about two bushels tan to each tree, as an experiment. I found the trees to thrive in a very luxuriant manner for some time, but when the tan began to decay, I found several of my trees destroyed; which was caused by a white grub with a red head, (known by the name of wood-worm.) I then examined an apple orchard of about 200 trees, where no tan had been used, and found the trees in a much better state; very few of which were infected with the grub above mentioned.

I have made trial of about twenty different kinds of experiments, generally recommended to save my fruit from destruction, but have found all of them to give only temporary relief from infection. I discovered that to take about two bushels of earth six inches below the surface, and throw it round the trunk and root of each tree, after cleaning the old soil from the trunk down to the root, to answer as good a purpose as tan; which earth should be removed once every two years, and new earth applied as before mentioned.

I have also found, that to have a heap of stones placed on the south side of every peach tree, proved as beneficial as either earth or tan.

The only benefit derived from tan is, that the frost will remain longer next to the trees in the spring, than about those which were not tanned, and until the weather becomes more settled so that you are more sure of a crop, and the buds are not injured by frost and thaw.

I have found that the chief destruction among the peach trees is as often done in the latter part of August as in any part of the season; upon examination, I have perceived the end of the peach twigs to have been stung by some insect, then to turn brown and spindly; the year following the leaves become curled and sickly; by watching peach trees at that time of the year, it may be seen that a number of black ants are to be found at the end of the twigs—this I suppose is the principal evil to which peach trees are subject.

In the spring about three or four days after the frost is out of the ground, you may find some of the white grub at the root of peach

trees commonly secreted under the gum; which may be remedied in the following manner; by clearing the earth about five or six inches below the surface, scrape the gum off, and apply dry ashes to the wound.

The best remedy that I have been able to discover for plum trees, is to place a quantity of oyster or clam shells round the roots, and every spring as soon as the frost is out of the ground to pour nearly two quarts of water about the root, which water is taken from ten gallons in which one ounce of corrosive sublimate of mercury had been dissolved; this water is also good for peach trees if applied at the roots during the summer.

I think it necessary to caution those who may feel disposed to make use of this water, that it is pos-essed of poisonous qualities, and therefore should not be put in any wooden vessel, except it is kept expressly for that purpose. P. L.

—O—
FEBRUARY, 17th, 1822.

Friend Skinner,

As thou hast lately been publishing many rare and valuable receipts for the preparation and preservation of various things conducive to the comfortable subsistence of man, it has occurred to me that it might not be irrelevant to thy views to offer thee something which may be called beginning at the fountain head; as the purpose is, to prepare and preserve man himself, both in his mortal, and immortal parts, I send thee therefore, the following prescriptions, which if they appear worthy of a place in “The American Farmer,” thou art welcome to insert them, as the recommendation of

Thy Friend and Constant Reader. RECIPE.

To Cure and Preserve the Body.

Wouldst thou be healthy, wealthy, free,
Plough well the SOIL, and well the sea.

To Cure and Preserve the Soul.

Wouldst thou be happy, honour'd, wise:
Then, Virtue more than all things prize.

—O— RECIPE.

The Pneumatic Influenza.

An Indian Sweat by means of steam, has been found to effect a cure with the greatest certainty.

1. Take alum and brimstone equal quantities, or the size of a thumb, and as much gun-powder or nitre as will balance both, pulverize and mix them together. Then take as much of this mixture as will lie on a quarter of a dollar, make it into a potion with vinegar and water, say half a gill for a grown person let him drink it, and cover him warm in bed.

2. Then have ready a pot of 7 ears of corn boiled take the corn hot, wrap 5 or 7 ears together in a bunch put one bunch on the feet, another between the knees and a third to the hips, &c. as hot as can well be borne, but be sparing in putting it about the breast. If the first boiling of corn fails to bring a tolerable sweat in an hour, try the second. When the sweat has been once attained, the corn may be removed but the sweat should be kept up moderately by drinking weak sage tea, reasonably warm for four hours. Then cool carefully, and the cure will frequently be effected. But if an oppression of the breast remains, take the like portion of the mixture and vinegar the two following days, but don't force the sweat, for an excess of sweat may do harm.

If the body is costive, it should be relieved, either by injection or by some moderate purge, such as scutiv grass, butternut pills or salts.

This disease is common, is not a bilious complaint and may often be cured.

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos nimium sua ei bona norint
"Agricolae." VINO.

VOL. III.

BALTIMORE, FRIDAY, MARCH 15, 1822.

NUM. 51.

AGRICULTURE.

From the Bath and West of England Society Papers,
Vol. X.

AN ESSAY ON MANURES.

BY ARTHUR YOUNG, ESQ.

(CONTINUED.)

CHAPTER VIII.

Of The Sheep-Fold.

To examine the various circumstances of this method of manuring through the detail of sections, would be tedious. There is scarcely a farmer in the kingdom that is not acquainted with the great benefit derived from folding. The immediate application of dung and urine to all soils, and of treading to loose ones, are so well known, that in some late discussions on the *profit* of the practice, no doubts that I am acquainted with, have been expressed on this part of the question. It has rather been a discussion of live stock than of manuring. I shall only remark, that the case of the sheep-fold is a strong confirmation of the purport of the preceding Chapter, so far as the animal part of yard-dung is concerned; for every one knows that sheep's urine and dung are so far from wanting fermentation previous to the application, that the sooner the seed is sown after folding, the greater is the effect.*

CHAPTER IX.

Of Pigeon's Dung.

This manure is esteemed by farmers to be *hot* and powerful, and is measured to the field by the bushel, the more common quantity is forty to fifty bushels per acre. If other sorts of dung were kept equally dry, they would not have the same effect, not equally abounding with volatile salts. It does not, in the house, run into those stages of fermentation which reduce a body to muck; and yet has, when spread, an extraordinary effect, affording one more reason for thinking that the common system of yard-dung is erroneous. Nor have I ever heard of any farmer throwing water upon it to promote fermentation.

CHAPTER X.

Pond and River Mud.

There are few manures concerning which, opinions vary more than upon mud cleansed from ponds and rivers. In several registered experiments the benefit has been extremely great; in some others no good, or but little, resulted from it. Some farmers have found it very beneficial to mix lime with it. Some have on experience, determined that it should be kept one or two years; and that it is much better for turning over and exposing thereby to the air. Others have carted it directly from the pond to the field with great success, neither adding lime nor stirring it. These different results are easily reconciled; for, in fact, no two ponds, or rivers, or parts of rivers, are exactly similar. In proportion as the water is resorted to by cattle, or water-fowl, or receives the washings of towns, houses, farm-yards, or privies, the mud must be good, and display its virtue in whatever manner managed. The quality of the water will have influence. The number of leaves that fall or blow into it, will affect it. The natural soil of the sides and bot-

tom creates a difference, whether it be calcareous, peaty, or clayey, &c.

When the circumstances are so numerous which may influence the quality of the mud, no wonder the observations made on its use should be contradictory.

A prudent farmer should examine the mud before he empties the pond; and he may do it with a certainty of discovering its quality and deficiencies. Let him dry a portion, and then fill some garden-pots adding to some, chalk or lime in different quantities, and exposing some a longer and shorter time turned to the atmosphere. He may mix some with the soil of the field he intends it for, and have a pot of the soil only as a standard. This easy experiment is a sure way to discover, by the vegetation of the seeds he sows in the pots, the virtue of his mud. If he do not pursue this plan, let him analyze the mud chymically, and discover whether it be calcareous or ferruginous, or impregnated with any other acid. By means of such easy trials he may proceed safely, and incur no expense that will not answer. I have emptied near a dozen ponds, and some of them large. I have formed composts of the mud, and also carted it immediately to the fields, and there was not more than two in which I doubted whether the manure answered the expense; in general it paid well, but in no case very considerably.

CHAPTER XI.

Sea Weeds.

Wherever these are to be had, the farmers use them with uniform success. Sixty years ago the use was so great and decided in Scotland, that land, which without weeds, would let at only 10s. per acre, let with it from 20s. to 40s. The best sort, and most durable, is cut from rocks at low water. In Caithness they form composts of it with earth, kept from six to twelve months. In the Hebrides it gives only one tolerable crop. And in Argyleshire they found most advantage on peat moss or boggy land.† But Mr. Somerville remarks, that on the coast of Haddington they use it fresh, in which state one load is of more service than two which have fermented in a heap. Nearly the same effect has been experienced in the Isle of Thorns. It will be found the same every where, and with nine substances out of ten. Such remarks combine with the question of long and short dung.

CHAPTER XII.

Pond and River Weeds.

Two or three very intelligent farmers in Norfolk have found great benefit in cutting these weeds just before the last ploughing for turnips, and spreading them as manure for that crop. That great cultivator Mr. Coke thus clears his lake every year. A Correspondent of the Bath Society, Mr. Wagstaff, values them as load for load as dung; and in another trial the following barley superior to that which followed dunging for turnips.* I have not known composts being made with them; it would be an absurdity.

CHAPTER XIII.

Hemp and Flax Water.

In Yorkshire they observe that the grass grows doubly where flax is grassed, which shews that all the putrid water of the pits should be used as manure.‡

* § Maxwell

† Statistical Account of Scotland, vol. viii. xii. xiv.

‡ Bath Society's Papers, vol. lv. v.

§ Middleton's Ann. vol. xiv.

The very ingenious Mr. Billingsley carted flax-water on his land, and the effect was extraordinarily great; superior to animal urine,† These very valuable hints should be pursued. And wherever convenient ponds and reservoirs are on a farm, one at least should be half filled in summer with green weeds for the putrid water, which would soon be the result.

CHAPTER XIV.

Burnt Vegetables.

Under the head of Faring and Burning, some explanations relative to this subject were given; and it is to be remembered, that the qualities of the ashes of all burnt vegetables (except marine plants) have a pretty near resemblance; some abounding with larger, and others with smaller portions of alkaline salts. There is, however, a circumstance of practice, which has taken place in some districts in Lincolnshire, which should be mentioned; and that is, the burning straw upon turnip land just before sowing. From three to five tons per acre are evenly spread, and then set fire to; it has been compared with, and found superior to, common dunging. Other facts which combine with this, are the practice in the fens of Cambridgeshire, &c. of burning very stout oat-stubbles reaped high, as a preparation for wheat, which is found both to clean and improve the land; and that of burning straw in the Lincolnshire way for turnips also, which is the common husbandry in the Pyrenees.

It is sufficient to mention these practices. Every enlightened reader will see the necessity of many experiments carefully made, before conclusions should be drawn.

CHAPTER XV.

Ploughing in Green Crops.

This husbandry has for ages been practised in this kingdom, and is common in many others. Yet the reports of individuals of their success have not been uniform; many have found little advantages from it. The practice however keeps its ground in every country; and is found by some persons singularly beneficial. In all such cases it is absolutely necessary, when every circumstance of a trial be not carefully registered, to consider only the results which are successful.

If growing vegetables turned down prove in many cases to be a good manure, it can be only from their fermentation gradually converting them into the food of plants. And in the cases where they do not operate, it must necessarily be from some circumstances of bad management or inattention, which counteract the obvious tendency of the substances to that conversion which is necessary to enable them to act. We have already seen that every vegetable particle under the surface dissolves and yields gases, which may either be taken up by the roots of plants, or carried away by the atmosphere. But crops may be so imperfectly buried as to convey those gases into the air, instead of retaining them in the soil. If this point be not carefully attended to, failures may reasonably be expected. What has been observed concerning long fresh dung as applicable here; and it accounts for variations in the results reported. The only way of proceeding is to roll down the crops with a barley-roller and add a skim coultter to the plough, going in the same direction as the roller, to plough six inches deep. To have no other successive tillage than scuffling shallow on the surface. This is an operation the effect of which depends exceedingly on

† Report.

* For a remarkable case of this, see *Annals*, vol. xvi. page 354.

the execution. It usually answers better for a summer's sowing, as of turnips, or early winter tares, than for late autumn sowings.

GENERAL REMARK.

Here are fifteen sorts of Manure, which are usually to be procured on most farms. In the calcareous class, lime, marle, chalk, or lime-stone, Sand, or clay. Burnt earth. Paring and burning. The farm-yard and sheep-fold; and ploughing in green vegetables. The dung of the farm-yard may, on all arable farms, manure from one sixth to one fourth of it, or from seventeen to twenty-five per cent. By a proper course of crops and layers, a certain portion may be pared and burnt; and at least ten per cent. manured by ploughing in green vegetables. A good manager may, by these three exertions manure more than one-third of his arable land every year; which, with a right application of calcareous manures, will keep any land in heart, and regularly in a state of improvement.

PART II.

Of purchased Manures.

It will tend to shorten the inquiry, if these be divided into those of the three kingdoms of nature.

1. Animal.
2. Vegetable.
3. Fossil.

The situation of a farm must necessarily govern all exertions in the purchase of manures. But there are few spots where something may not be done in this way.

CHAPTER I.

Of Animal Manures.

- Under this head may be included,
1. Night-soil. 7. Tallow-chandler's
2. Bones. 8. Graves.
3. Sheep's-trotters. 8. Woollen Rags.
4. Hair, 9. Currier's Shavings.
5. Feathers. 10. Horn Shavings.
6. Fish.

I shall first give a view of the common practice in the use of these manures, and then consider them collectively under the heads pointed out by the Society.

§. 1.—Night-Soil.

This manure is to be had in quantities only in the neighbourhoods of cities. In the vicinity of London it is largely used; and I have had during several years much experience in its application. The common quantity for an acre is about two hundred bushels, but I have tried it in larger portions. It is the best of all manures; and if dry, the cheapest. It does equally well on all soils, and for all crops; but the most profitable application in which I used it has been for grass lands, and spread after clearing away the hay; but I have spread it in all seasons, and found the benefit immense. If kept dry, it is worth 3d. per bushel, and may be had at that price. But if quite pure, and in powder, I would give 6d. per bushel for it, rather than forego the use. It is very durable in effect. Of all other manures it is in a state of powder the best for delivering by drill cups, with turnip seed, in the manner lately practised by Mr. Coke, at Holkham, with rape cake dust.

§. 2.—Bones.

Used to a considerable extent about London. The quantity five or six load: per acre, to the amount of two hundred and fifty to three hundred bushels, but varying according to the practice and opinions of individuals. They are collected, broken, and boiled for the grease, and then sold to the farmers. Some years ago they were to be had for 1d. per bushel, but have risen to nearly treble that price, and in some places even more. I have used them largely, and found them excellent for potatoes; they do best on strong soils, and their duration exceeds that of all other manures. The effect has been seen for above thirty years. The dust, the refuse of bone manufacturers, is used also to excellent purpose. This is

well adapted to cup-delivery in drilling any sort of seeds.

§. 3.—Sheep's Trotters.

These are a powerful manure, and usually sold by that quarter, with feltmongers' cuttings. The price some years past was 4s. per quarter; but in the scarcities they advanced, and have not again fallen. Four or five quarters per acre is the common dressing; but I have known eight spread. The effect is great. They should be ploughed in not less than six inches, with a skum coulter; or vermin and dogs will be attracted.

§. 4.—Hair.

Hog's hair is sold in great cities from 1s. to 1s. 6d. per bushel, pretty well squeezed into the measure; but depending, as in all uncertain measures, on the attention of the purchaser: from sixteen to twenty-five bushels per acre, the common quantity.

§. 5.—Feathers.

These are found to be a powerful manure. I have known them bought at 1s. 6d. per bushel, lying close, in a partly-clotted state; and twenty-five bushels an acre spread with much success. But it is registered that ten bushels an acre yielded forty-eight bushels of white wheat. The same land unmanured gave but twenty-eight.*

§. 6.—Fish.

Every sort of refuse fish is one of the most effective manures that can be carried into our fields. The whole blubber offal is every where applied to this use, and never fails of giving great crops wherever spread. The refuse of the pilchard fishery in Cornwall deserves the same remark. They are dressed with bay-salt; the refuse sold at 6d. per bushel; and immense crops of barley, even to ninety bushels per acre, are said to have been gained by their application. Ferings in a plentiful tale have been applied to the same use in Scotland. In Dorsetshire, Mr. Davis, of Swire, spread them *fresh* at 1s. per load, thin over a field, and ploughed them in for wheat. The crop was so rank that it was entirely laid before harvest. And in the fens of Cambridgeshire, Lincoln, and Norfolk, the little fish called sticklebacks periodically swarm in the rivers to that degree, that a labourer has earned 4s. per diem by selling them to the farmers at 3d. per bushel. They are now risen to 6d. and 8d. and great sums are thus invested for forming composts. Major Cartwright, near Boston, found them to exceed whale refuse, probably because used in a fresher state.

§. 7.—Graves.

Tallow-chandler's refuse is purchased at from 2s. to 5s. per cwt.; and from ten to fifteen cwt. are commonly spread per acre. I have seen remarkable effects from them in turnip crops, on poor sandy soils. Dr. Wilkinson, of Enfield, found them far superior to dung for that crop.

§. 8.—Woollen Rags.

The price of these have varied of late years considerably; from 5s. to 7s. 6d. per cwt. Chopping them into small pieces is 6d. per cwt. From five to twelve cwt. have been used. It has been an observation of the Hertfordshire farmers, that they do best on dry and sandy lands. They not only, in common with all animal substances, become the food of plants, but also attract and retain much moisture from the atmosphere. Dr. Cullen found that they have a sensible effect for six years.

§. 9.—Currier's Shavings,

And furrier's clippings, are bought at London at about 1d. per bushel; but the price varying with times. When corn sells well, these and other manures are eagerly sought for, and at high prices; but in bad times the demand is slack, and the price

falls. Thirty bushels per acre are a common dressing. They do best on dry soils.

§. 10.—Horn Shavings.

These are also bought at about 1d. per bushel, and thirty sown per acre. They are almost equally applicable to all soils; but do best in wet seasons.—The coarser sorts are cheaper, but inferior in effect, though more durable.

§. 1.

The Nature and Properties of these Animal Substances.

All animal substances are resolvable into hydrogen, nitrogen, oxygen, carbon, phosphorus, and sulphur; that is, they contain the principles which by every consistent theory of vegetation are necessary to the food of plants, already supported by earth, air and water, the two latter certainly, and probably the former likewise, formed of these simple principles. The practice of the farmer here goes hand in hand with the philosophy of the chymist; for every husbandman knows, or ought to know, that every animal matter whatever will fertilize his fields.

The nature of these bodies can scarcely be mistaken; and it should be more generally known, that it is the same in all. When any of them are found more rich than others, it depends merely on a greater ease of dissolution; some run into fermentation sooner than others, but they all ferment; and by that intestine motion produce more or less of the same principles.

The difference in their active properties depends on this circumstance. Bones will last twenty years; but urine begins to act immediately, and has a short duration; but every one agrees in the main point of yielding the food of plants.

§. 2.—Preparation; State; Application.

There is but one point here to be considered consistently with any degree of brevity; and that is, the question which arises with some, whether to apply them immediately to the soil, or prepare them by fermentation in a compost or dunghill?

The common practice with much the greater part of these manures is to apply them in the state they are purchased; and this conduct combines with a question before discussed, of fresh and rotten dung. If every particle is sure to dissolve in the soil, and by dissolution yield those first principles of these bodies just recited; for what purpose should a previous fermentation be excited, to produce gaseous matters evaporable in the moment of their production, and if not buried, carried off by the atmosphere?

Horn shavings in a heap would become mucilage, yet the best farmers all sow them without preparation; and the more the subject is examined, the wiser will their conduct appear. All turns on the dissolution of a single particle—a point of vast importance, which pervades and ought to govern the whole theory of manuring.

The result will be found consistent with the more general practice. All these substances should be applied to the soil as soon as the farmer's convenience and the state of his fields will permit.

§. 3.—Season; Quantity; Soil.

The farmer, by purchasing these manures in January, has or should have a power of storing them free from rain or wind, and consequently of using them at the season that best suits his purpose. The only one properly applicable as a *top dressing*, is night soil dry and in powder; all the rest should be ploughed in as soon as spread. There are authors that recommend shewing all or most manures in this method, which is consistent only with the supposition, that as they dissolve the atmosphere does not carry them away. The absurdity is self-evident. In proportion to the ease and susceptibility of fermentation, they ought to be spread as soon as it may be before the seed is sown. The quantity commonly applied has been mentioned under the respective heads.

As to soil, all animal substances act as manures powerfully on all; but the fermentation and consequent dissolution will depend very much on its being loose, friable, and neither quite dry nor very wet.—

* Bath Memoirs, vol. i.

† Report. ‡ Ibid.

On heavy clay soils they will not act with the same energy as on loams, good sand, and the drier calcareous earths. But bones, having a mechanical effect, as well as a fertilizing one, are excellent on such land.

CHAPTER II.

Of Vegetable Manures.

The manures from the vegetable kingdom which are most commonly applied are,

- | | |
|-----------------|-------------------------|
| 1. Wood-ashes. | 6. Pot-ash Waste. |
| 2. Peat-ashes.* | 7. Sugar-baker's Waste. |
| 3. Coal-ashes. | 8. Tanner's Bark. |
| 4. Soot. | 9. Saw-dust. |
| 5. Peat-dust. | 10. Peat-cake. |

§. 1.—Wood Ashes.

From several experiments which I have made in consequence of Mr. Hazenfratz starting a query, whether alkalis were a manure, I found that pearl-ash is a very powerful one; and that it had also the remarkable property of acting on charcoal, (though not by fusion) by mere mixture and solution in water: the nature of wood ashes is well known; and wherever tried they have proved a valuable manure. They evidently act by their alkaline salt, as well as by classing among the substances which have passed the fire; the effect of which operation in every degree of heat, (small as well as great) is by no means well understood. According to Mr. Kirwan, they contain some phosphorated selenite; common salt and glaubers are also found in them in small quantities; all which in a small dose accelerate putrefaction. They attract carbonic acid from the air. I have had experience of their use on gravel and loams both dry and wet, and never used them without good effect. The spring is the proper season, and succeeding rain of much importance. Forty bushels per acre the common quantity.

§. 2.—Peat Ashes.

In most countries where peat bogs are found, the ashes are a common manure. Their value usually depends on the blackness and density of the peat that is burned. Those of the Newbury peat are the most celebrated, and ten or twelve bushels an acre is a common quantity: whereas in other countries twenty to forty have been usually applied. This difference is the result of the component parts of the ashes. One hundred grains of the Newbury contain, according to Mr. Davy,

Oxid of Iron	48
Gypsum	32
Muriat of Sulphur and Potash	20
	100

Where these ashes are used with great success, there is probably a deficiency of iron in the soil. Similar is the result of uncommonly ferruginous peat-ashes, in Bedfordshire, when used on the chalk hills of Dunstable.

The great effects which on some soils attend the use of five or six bushels per acre of gypsum, prevents us, however, from concluding that the whole benefit of the peat-ash is from the oxid of iron; this will depend on the soil, which may possess iron enough; (all have some) and in that case the gypsum may be important. In the Newbury peat-ash no alkaline salt is found. Lord Dundonald says it is not found in any; yet some authors have told us that it contains a 22d part of fixed alkali; but although peat-ashes contain no alkali, the ashes of surface turf on a peaty soil do contain them, of which many cases have occurred; amongst others, see *Brussels Memoirs*. Their effect is great on dry friable soils. On stiffer ones the quantity used is larger; and, on some clays they have been tried with very little, if any effect.

(To be Continued.)

* The supposed vegetable origin of coal would not justify this classification; but it will conduce to clearness to arrange all ashes in the same division.

† Rouelle, Fourcroy. ‡ Priestley.

For the American Farmer.

NEW-YORK AND OTHER CANALS—ROADS, &c.

NO. I.

The volume lately published in New-York, containing all the official documents relative to the superb, and extensive Canals now executing and rapidly advancing towards completion in that state—and also an interesting, handsomely written introduction, is calculated to do much good. Inasmuch as it unfolds the operation of a wise and liberal policy in the state legislature, that could properly appreciate and encourage the expanded views of a few enlightened individuals from time to time, and step by step, until the mass of the population became not only awakened on a great subject, but were induced cheerfully to engage in the enterprise, with such effect, as will probably, in a few years, place the state of New-York in a situation, as relates to wealth and power, that she would not have arrived at in ages by any other means; inducing other states with the flattering prospects of success, "to go and do likewise."

Admitting the trade on the Western Canal to be limited by the boundaries which nature seems to have prescribed, this volume proves beyond contradiction, what many persons in other states, as well as N. York, believed before, viz: that the Western Canal will in a few years redeem the capital employed in its construction, and then afford an enormous revenue to the state, and at the same time so reduce the price of transportation, as to enhance the value of real property in all the western part of the state, more than 100 per cent.

The territory on which this canal will have a legitimate claim for the profits of transportation, either on a part or the whole of its line, is, nearly the whole of the state of New-York west of Albany, the whole of the country north-west of the great lakes above the lower end of Lake Erie, as far as population will ever extend; and all the country south and east of these lakes to the dividing ground between them and the waters of the Mississippi.

This is certainly an immense territory, and will probably after some years yield a freight on the lower section of the canal, equal to the quantity contemplated (to wit) 1,000,000 tons annually. Supposing the navigation to be suspended by frost four months in the year, and a few days taken for repairs, &c. then allowing six days in the week for labor, about 200 days will remain for the navigating of boats. And supposing that two-horse boats of 50 tons burden each, will be found to be the size best adapted to this navigation, it will require the passage of 100 boats daily. But as the trade will be so irregular, that perhaps five times as many will pass in a given time, at some seasons of the year as at others, it is highly probable that a trade of this extent will be found to be as much as the locks and feeders will at all times conveniently accommodate.

But in the course of the reasoning found in the introduction to the Book under consideration, it seems to be taken for granted, and supposed to be proved, that the city of New-

York is not only to command the trade of the territory just described, but to furnish the inhabitants of the valley of the Mississippi with all their merchandize, and to receive their agricultural and other products in return: and of course Philadelphia, Baltimore, and other southern atlantic cities, must be content to divide the trade of the small strip of land between the mountains and the sea-board among them in the best manner they can.

Now it is not intended to deny this position. But as it is also stated, that all this is to be effected by means of the Western Canal, some doubts are entertained whether this would be the most eligible channel through which this branch of the New-York trade ought to be conducted. A little attention will therefore be bestowed in the examination of the subject, and if the plan that has been proposed should be found inadequate to the object, another grand scheme is held in reservation ready to be offered for acceptance, in case of any prospect of failure in the first.

It often happens to the best of us, that when we become enraptured with a favourite object which we have ascertained will really be useful, in the ardor of our zeal we persuade ourselves that more good will be produced from it than nature ever intended; or than can be extracted from it by nature and art combined.—This may possibly have happened to some of the eulogists of the Western Canal. We have seen in the introduction before mentioned, a decorated picture of this great work and its effects, drawn by a master-hand. It is probable we may have viewed it in a milder light than it was intended to have been exhibited, and therefore have not been dazzled by the rays of splendour, which, under other circumstances, are reflected from almost every part. We are almost tempted to ask the question, Whether a little more shade introduced as an offset, to the many highly illuminated parts, might not have rendered the picture still more perfect? We suppose, for instance, that this navigation will be suspended by ice about four months in the year—we also suppose and believe, that there will be more uncertainty and greater difficulties to be encountered, in communicating with the Ohio, than has been contemplated.

Those who are acquainted with the western waters, very well know, that they are subject to very great diminution from drought;—those that derive their sources from the Alleghany Ridges partake largely of that character—admitting then that a canal should be made from Erie to French creek, it might happen that a boat freighted with New-York merchandize, after passing that Canal, would find the creek too low to proceed on her voyage to Pittsburg; and might possibly have to wait many weeks, and even months, for a rise of water—for it is very well known, that this stream does not usually afford sufficient water for navigable purposes during the latter part of summer, and most of the autumnal months. Even the Alleghany itself, for some distance below the mouth of French creek, is frequently for months in succession too low to admit the passage of loaded boats.

But are we quite sure that a sufficient supply of water can be obtained in a dry season to supply the summit level of a Canal on this route? If this has ever been ascertained by a competent engineer, we are ignorant of that circumstance, and until we are better informed, some doubts will exist on the subject. And, strange as it may appear, we are equally as sceptical with regard to the proposed communications further westward. Not that we deny a single position contained in the introduction.—We admit that the waters of the Cayahoga and the Muskingum approach within six miles of each other; that the Sandusky and the Scioto have their sources in the same swamp; that the Miami of the Lake, and the Miami of the Ohio have their rise on the same level; that the sources of the Maumee of Lake Erie, and the head waters of the Wahash, would intermingle (at some seasons) with very little labour; that the raising of Lake Erie and the St. Joseph's of Michigan, are contiguous in their head waters; that the southern waters of Lake Michigan and some of the branches of the Illinois interlock, and that at one place at a particular season of the year their waters afford a navigation from one to the other—at another season there is only two miles portage, at another seven, and at another fifty miles. We also admit that this dividing ground exhibits a vast extent of high level country, the inclination on each side of the dividing line of the waters being so small, as to "seem almost insufficient to decide their course." Yet supposing canals opened at all these places, we have doubts and difficulties in ascertaining the measure of their usefulness; because we believe that their summit levels would be found a considerable portion of the year without water.

Level districts of country lying at the foot of mountains or below high contiguous lands are generally favourable for Canals, because the expense of crossing deep ravines is in a great measure avoided, and feeders may mostly be obtained from streams that have their sources considerably above the line of Canal.

Mountainous countries afford greater facilities for passing dividing ridges by Canals than might at first view be expected. It often happens that the dividing ridge is very much depressed in consequence of a branch from each side heading nearly opposite. In this case there is generally a considerable body of land that is elevated far above this depressed point, and of course produces at least the probability that springs may break out above this level, which may be collected and conducted to it, or, as mountainous streams have generally much fall, that some one may be intercepted high enough to supply the summit level. If neither of these can be effected, as such ridges are generally narrow, it may probably be tunneled at a lower level where the water may be brought at a comparatively moderate expense.

But of all the forms which the face of an extensive and diversified country presents, that which is exhibited between the branches of the Ohio and those of the Lakes, is the most unfavourable for obtaining a supply of water on summit levels in dry seasons, when such a form

is connected with an elevation above the surrounding country, and this is the fact in the present instance.

When a substratum of dense earth pervades such a district of country, the melting of snow, and the great rains which usually fall in the latter part of winter, at times literally covers the ground with water. But as the cause ceases to operate, the water passes slowly off, and is seen only in the most depressed places forming shallow ponds, which are often many miles in extent: small interrupted outlets and evaporation by degrees diminishes these, so as only to present the appearance of extensive swamps, where the winter and spring waters are still in part retained by the boggy soil, covered by water grasses and shrubs, but the summer drought so effectually drain them of their moisture, that very little if any water is seen to flow from them. For, here we are not to look for large and permanent springs; these cannot exist without a body of elevated land somewhere in the neighborhood.

The time is past when philosophers could be amused with the notion that capillary attraction and other subterraneous magic, were competent to raise water from the bowels of the earth, and discharge it on the summit of high mountains. In the present day permanent springs are not found even on very elevated plains. It is true, in those places which are a little depressed and swampy, while the surface around is generally moist, water will ooze from the earth; but a summer sun, and dry weather soon exhausts their resources.

These gradations, from a great superabundance of water, when swamps become navigable, to an absolute absence of that fluid, are very happily described in the Introduction. In the case that seems to be most relied on for a communication between Lake Michigan and the Illinois, it is said, as before stated, that at one season of the year there is an uninterrupted navigation; at another season there is a portage of two miles; at another seven, and at another fifty miles.

With these facts before us, we should not be surprised if an engineer should traverse the whole dividing ground from the eastern boundary of the state of Ohio, to the junction of Lakes Huron and Michigan, thence between the waters of Michigan and Illinois, without being able to find a single place where a full and permanent supply of water, for a large trade, can be obtained, for a summit level; or any spot where the length of a tunnel would not be too great even to induce a single serious thought relative to its execution.

But it is said, the ground for the Ohio Canal has been examined and found practicable. It may have been examined, but perhaps not with that degree of care and accuracy necessary to form a decisive opinion in such an important case. Whenever we see a detailed account of its having been done by a competent engineer, with suitable instruments, and thereby ascertained that a stream of water can be conducted across the dividing ground sufficient to drive a pair of five feet mill-stones forcibly by a 14 feet over-shot wheel, in the driest seasons, then we shall certainly give credit to the prac-

tisability of constructing a navigable Canal, the whole distance from Lake Erie to the Ohio River. But then we must also believe that there has been some little mistake in describing the ground as being almost perfectly level.

We will not presume to say that New York cannot effectuate a permanent water communication from Lake Erie to Lake Michigan, and thence to the Illinois River in one month; but we think when she does accomplish it in that time, she will be entitled to credit for a full month's work.

On casting our eyes over a Map, and discovering that the branches of different streams interlock, we are apt to believe there will be little difficulty in connecting them by a canal. It is time this deception was done away. Recent experience has proved, that in many instances where the connecting of water courses has long been thought quite practicable, the application of the level gives a different result; and proves that dividing grounds present greater obstructions to internal navigation than many suppose.

Many very important Canals may be opened in various parts of our country; but they are not likely to be the sooner accomplished by entertaining the erroneous opinions that these facilities are more numerous than they really are. It may have the effect in some degree to distract attention, and prevent those who are interested from uniting in, and prosecuting with effect, plans that would lead to usefulness, wealth and prosperity.

There is another part of the Picture that has attracted our attention, on which we are willing to make a few remarks. It is stated, that amongst other things the Canal is to furnish the Mississippi valley with Salt, from the Onondaga Salt Works, to an immense amount. Because it is said, it may be delivered at Pittsburg for \$5 31 per bushel; and at Louisville for \$5 50; and that the Kanawha Salt cannot be afforded for less than \$6 per barrel.

So far as relates to the Kanawha Salt, there appears to be a little error in information. In August last, by actual inquiry on the spot, it was ascertained that 50 furnaces were then in blast, averaging about 60 bushels per day each; which gives, for the whole daily product, 3000 bushels; and that a great proportion, if not the whole of this large quantity, might have been purchased for specie or eastern paper at from \$3 to \$3 25 per barrel or something less than 50 cents per bushel. From the spirit and activity with which the works were then carried on, it would seem that no money was lost at these prices. Now if it will cost but 19 cents to transport a barrel of N. York Salt from Pittsburg to Louisville, as it is but about two-thirds of the distance, and a better navigation, a barrel may be carried from Kanawha to that place for 13 cents, which at the most will amount to but \$3 58; the difference is \$2 12; one half of which it is believed would carry it to Pittsburg; and proportionally less to the intermediate points.

It is true the manufacture at Kanawha has been conducted rather more with a view to quantity than quality. But it only requires a little additional labor to produce salt of an ex-

cellest quality; and whenever labor can be more profitably applied in improving the quality than in increasing the quantity, the change will certainly take place. From what we have seen of the process, it is believed that two or three cents per bushel of extra labor well applied, would render this Salt nearly equal to the best now manufactured in the Western Country. These works have the advantage of inexhaustible supplies of coal in their neighbourhood when their stock of wood fails. Several have already availed themselves of this all important resource.

It is stated that no water in the United States is equal to that of the Saline in New York. We have never tasted that water, but we know from actual inspection, that the water from King's old well, on the north branch of the Holstein, will dissolve no more salt; it is therefore saturated.

At a time when food for news-papers is so abundant, we have certainly written enough for one number, and have only just arrived as it were at the threshold of our argument, to prove that the Western Canal ought not, and cannot constitute a link in the chain of communication by which New-York is to furnish the valley of the Mississippi with merchandize, or receive its products in return. We hope however, that in the next number we shall not only be able to get through with the examination of our evidence, but to make a full display of our grand scheme for effecting this great purpose with more certainty and economy.

LOOKERS ON.

Jan. 29, 1832.

FOR THE AMERICAN FARMER.

CABBAGE PLANTS.—How best Raised.

Mr. Skinner,

A very erroneous practice has long prevailed with respect to the method of propagating cabbage plants; and although I may be laughed at by experienced gardeners, (for I don't profess to be a nice gardener,) for innovating on their prerogative; still I will venture to suggest a mode which I believe all will approve after trying it.

The common practice has been to sow cabbage seeds on very rich ground, in order to have early plants, and many estimate the value of their plants for transplanting, in proportion to their large size—but I do not.

If you sow your seeds early, on very rich ground, they progress rapidly; and, if sown thick, as is commonly the case, soon acquire a small slim stem, and small top—and, if sown thin, they will be too large to transplant before the proper time, for a winter crop.

If you sow your seeds late in the spring, you cannot be certain of succeeding. The plants, as soon as they appear above ground, are frequently destroyed by a small black flea, especially if the weather proves dry, and it is difficult to preserve them. I have tried many remedies without success.

Some years ago, after I had sown a large bed of cabbage seeds early in the

spring; I determined to procure a variety, and from the seed stores I was furnished with eight or ten different sorts—they did not come to hand as soon as I expected, and I believe they were sown about the first of May, on rich ground: the season proved dry, and as soon as they appeared above ground, they were destroyed by the flea. I entirely failed with them, and was obliged to have recourse to my bed sown early in the season.

Instead of sowing my cabbage seeds on rich ground, I have for several years past chosen the poorest part of my garden, and sown my seeds as early in the spring as the frost would admit. The continual moisture of the spring will soon cause cabbage seeds to vegetate and grow on poor ground; and the flea does not often injure them when sown early. If any are wanted for early transplanting, they can be forced by sprinkling a part of the bed with lie from around the manure heap: and a portion of the plants can be thus forced all through the season, so as to have them of proper size at any time. Those on the poor ground not matured soon acquired a dwarfish appearance, and will remain so all the season, unless watered or manured as directed, or transplanted to rich ground, when they will grow vigorously if the season should prove favourable.

I do not prefer to transplant large plants; for small plants do not wither and fall so much as large ones. I shall hereafter pursue this method, and I ask others to try it, before they condemn the practice. A.

FROM THE NEW YORK STATESMAN.

Woolen Manufacture.

The present is a period highly favourable to the establishing of woolen manufactures, and I am desirous of conveying some hints, through the medium of your excellent paper, to those who may be about engaging in such concerns.

The ultimate success or failure of any business, will very much depend on the manner in which it is put into operation, and in none, is this axiom so certainly verified, as in the making of woolen cloth; for its branches are very numerous, and each one must be well executed, before the article can be turned out in the best manner.

I know of no woolen manufactory that is managed by persons understanding the business; it is true, Europeans are employed in some of the branches of every factory, but I believe there is scarcely one, that is managed by an individual, who has a knowledge of all its manipulations. It is not necessary that a manager should be a perfect workman in every branch, but it is indisputably requisite, that he should know when every part is well performed, and be able to point out the cause of any, and every defect.

I have known many factories in this country, where, for want of one or two men, who being well performed, the cloth, when finished, has not been worth as much by one tenth, as it ought to have been; there has consequently been a loss of ten per cent on the returns, arising from defects, that might have been avoided without any

additional expense. Defects that commence with a factory, are apt to acquire stability as it progresses, and it is no slight undertaking to oblige workmen, who have been long grounded in error, to undo, what they have been instructed to consider as being perfect workmanship.

There is probably no woolen factory in the United States, where the owners have not suffered severe losses, by purchasing machinery that has proved inadequate to the performance of the objects for which it was intended. This evil may be avoided, by employing some competent person to superintend and direct the laying in of the machinery; but should it be ordered by any one ignorant of the business, the loss, usually attending such a commencement must necessarily ensue.

Foreigners are often employed to direct factories from the beginning, who are masters of only one or two of its branches; the result has been that such parts of the machinery, as they were conversant with, have been well laid in, whilst other parts have been very defective.

This difficulty will always occur, where common workmen are intrusted with the undertaking generally: for no person can be ignorant, that foreign mechanics and manufacturing workmen are not acquainted with more than one or two branches of the business they profess to undertake.

Englishmen, coming from different manufacturing countries, will vary very much in their mode of working as well as in the kind of machinery they have been accustomed to work with; this difference arises from two causes; first, from the quality of the goods made in each county, and secondly, that in some counties machinery is more generally used than in others. The counties in which woollens are mostly fabricated, are Yorkshire, Wiltshire, Somersetshire, and Gloucestershire; the first is in the north, and the three last in the west of England. I know nothing of the manufactures of Ireland, but I suspect they are mostly confined to goods of low quality, as that country affords the best market for English superfines. The cloth made in Yorkshire and Somersetshire, is mostly of inferior quality; to this rule there is some exceptions, as Hurst in the former, and Sheppards of Frome in the latter. In Wiltshire, they make about an equal quantity of low and fine qualities, whilst the County of Gloucester is more generally used than in either of the others.

A workman from Gloucestershire knows nothing of raising the nap, or of shearing by hand, because in the county he comes from, those branches have been long performed by the gig-mill and shearing frame; such as come from the other counties can do both, as some of the makers there have their work done by hand, others have it done by machinery.

Having stated some of the difficulties manufacturers have to encounter, in employing workmen, I shall proceed to notice each of the operations to be performed, and should the statement be beneficial to the progress of manufacturing, I shall be amply compensated for my trouble.

Purchasing of Wool.—This should be always done by some practical workman who is a

judge of the article: as the profits of the business will depend, in a great measure, on the quality of the staple commodity. I have heard it observed by an experienced maker, that the smallest haired wool does not always make the finest cloth. In purchasing in the fleece, it will be necessary to notice more the general quality than that of any small portion of it.

There is a material difference between old and new wool; old of the same quality will never handle as soft when in cloth, as new, nor will it draw into as fine a thread on the jenny.—This remark must be considered as applying more particularly to wool after it is scoured, than before, for wool when scoured, and laid by for any considerable time, will become harsh, and never recover its original softness; hence the reason why Spanish wool, of any given quality, will not make cloth as fine as Saxony, or American of the same grade. The Spaniards scour their wool soon after it is sorted, and it is often two years before it is in cloth.

Sorting.—The principal thing to be attended to in sorting, is to take care that the different sorts are regular in their qualities, and not to have them too numerous, four, or at most five, being sufficient for any description of wool.

Wool Scouring.—Unless this operation be well performed all the subsequent ones will be injured. The wool has to be cleansed from a soft fatty substance, called the *volk*. There is no choice of material, as human urine is universally used. The volatile alkali of the urine combines with the extraneous fat of the wool, and a saponaceous compound is formed that will readily pass off in water.

The liquor used in England for scouring fine wool, is composed of one part of stale urine, to two of water: immerse the wool at about 125° Fahrenheit, let it lay, after well stirring, for fifteen or twenty minutes, then land it on wooden bars over the furnace to drain. When drained, it should be washed in a basket, or some other similar machine, placed in a moderate current of water, until that fluid passes through it perfectly limpid. Some wool requires a greater, and some a less proportion of urine; if too much is used, the wool will be stringy, and difficult to work, and if too little, it will not be clean.

I have known potash used in this process, which is worse that useless, as will be explained, when I treat on the art of dying. If wool will not cleanse in the usual menstruum, the best substitute will be soft soap.

The older the urine is, the more certain will it produce the desired effect; for the salts contained in the new are mostly acid, and in that which is stale they are mostly alkaline. It is said not to arrive at its greatest degree of perfection in less than a year. It should be kept in close vessels after having been exposed to the atmosphere for a few weeks.

Dying.—The low qualities should be dyed blue or some saleable mixture, the finest may be colored black.

I would recommend the blue that is *Woad dyed* as far superior to any other. The ash or indigo vat is generally used in this country, but the color does not wear well. I have seen garments of this color that were a dark blue when made up, become almost white after hav-

ing been worn a short time; which proves, that wool is rather painted than colored in this process.

Ash dying is injurious to the manufacturer, as well as to the public; for it is a well known fact that potash will dissolve wool at a temperature many degrees below boiling heat. That a portion of the wool is dissolved in ash dying will be evident to every scientific reader from the following description of the process, and of some of the facts connected with it.

In setting an ash vat, two pounds of caustic potash is used to every pound of indigo, together with strong bran and madder water; this quantity of indigo is expected to color ten lbs. of wool, but not without an additional quantity of caustic potash. The general temperature of the liquor for dipping is 125 deg. Fahrenheit: after working a few days, the liquor becomes so fat, as to render it necessary to throw a portion of it into a furnace, and to boil it with a quantity of bran and madder, to separate the oily matter, the liquor had dissolved from the wool.

Cloth made from wool dyed in the woad vat, will *full* in sooner, and, when finished, will handle one quality finer than that which has been colored in the ash vat.

It is clearly proved by the facts above mentioned, that ash dying robs the wool of a portion of its soft unctuous matter, and that the quality of the cloth is injured by what has been subtracted.

Any person may be convinced of the solubility of wool in potash by making the following experiment—let them dissolve one pound of potash in water of 190 deg. Fahrenheit, into which put three pounds of wool, and they will soon dissolve, and the product will be soft soap.

A vat for woad dying should be seven feet six inches in depth—seven feet six inches in diameter at the bottom, and six feet on the top: should be made of clean deal plank two inches thick, and be well secured with stout iron hoops.

A vat of the above dimensions may be set with five hundred and sixty pounds of woad, thirty pounds of indigo, six pounds of madder, and two pecks of bran. When blue veins appear in the liquor, and the head and scum are of a rich purple color, add half a peck of fresh burnt lime, previously dry slacked; from this time the liquor must be stirred every two or three hours, and lime added at each stirring, until enough has been given, which can only be known by experience, as two makings of woad will never take the same quantity. When the vat is well at work, dip one wet of wool, about forty pounds, and return the wet once; then repeat the liquor, and add to it fifteen pounds of indigo and a suitable quantity of bran and madder: from this time it may be worked every day for six or eight months, adding indigo twice a week, and one hundred of woad every Saturday until ten hundred has been used. This vat, in the hands of a skilful workman, will color many thousand pounds of wool.

The manufacturers of this country have been accustomed to work all the indigo out of the ash vat in a few days, and they appear to be afraid of risking as much in the woad vat, as will give a fair trial; but they may be assured that any attempt to work a woad vat, that shall be weak

of woad and indigo, will end in their own disappointment, and bring the dyer into disrepute however eminent he may be in his profession.

In a work edited by Thos. Cooper, Esq. published in the year 1815, are the following observations on the woad vat:

P. 23. "I am in doubt whether much is gained by the woad vat altogether here; and considering the value of labor, perhaps we do not lose much by confining our blues to the indigo vat."

P. 40. "Five pounds of indigo of the best kind contain near as much colouring matter as two hundred pounds of woad."

One acre of prime land will produce two tons of woad in one season. I planted two acres in this country from which I obtained three tons; the land had been worked many years and was not in the best condition; the expense including rent, cultivating, and making, was about one hundred and fifty dollars, not exceeding that sum. If woad will afford two and a half pounds of indigo for every hundred, as asserted by Mr. Cooper, and thirty hundred can be raised on an acre of land of middling quality, surely, there can be no reason for objecting to the use of the woad vat from a motive of economy.

What Mr. Cooper means by "considering the value of labour, &c." I cannot comprehend; for where a woad dyer can have access to a full complement of materials of good quality, the woad vat will turn out more colored wool in a given time, and with less expense for labor, than the ash vat.

HOPSON.

From the New York Statesman.

COTTON.

Cultivated on Long-Island and in the State of Illinois, Lat. 39° North.

Messrs. CARTER & PRENTISS,

In addition to the evidences which I have already adduced in proof that Cotton may be raised with advantage on Long Island, and the sea-board of New-Jersey and Connecticut, I have to state, that a gentleman of this city, several years since, planted some cotton seed in his garden; the plant thrived well and without the aid of "artificial means," the bolls were well formed and large, and produced cotton of good quality. The same gentleman has since, from seed raised here, annually cultivated cotton as an ornamental shrub, it has invariably come to maturity and produced fine cotton. The following article from the Washington City Gazette, shows that cotton has been cultivated on the Wabash, in the state of Illinois, about the 39° of north latitude, and in point of climate, not less severe than that of Long-Island and New-Jersey. These new proofs, I hope, will encourage some of our farmers to make experiments that will decide whether cotton can be safely cultivated as a regular and profitable crop. To enable these experiments to be made, I have sent for several barrels of cotton seed; as soon as it arrives, which I expect will be in the course of a month or six weeks, it will be deposited at your office for distribution.

AGRICOLA.

Illinois Cotton.—We learn from the best authority, that during the past season, cotton and wool, the growth of the eastern part of Illinois, have been discovered to be of a superior quality. The prairies, with which that state abounds, are said to be peculiarly favorable to the raising of sheep and the cultivation of cotton. A Mr. Benedict, who recently removed from this neighborhood, arrived in town a few days ago, with a waggon load of cotton, raised last season on the Wabash, which he offered in our market at 18½ cents per pound. It is pronounced by good judges to be of a very superior quality. It will be a fortunate circumstance for the young state of Illinois, should these articles of raw material be extensively produced. The prairies, when broken up, are but little affected by grass or weeds, and may be cultivated to much greater advantage than any other lands. We understand that the planters in Illinois have made arrangements for raising as much cotton as will supply every reasonable demand from our great commercial cities, and to afford it as low as it can be had in any part of the United States.

FOR THE AMERICAN FARMER.

Kentucky Agricultural Society.

At a meeting of sundry farmers from different parts of Jefferson County, state of Kentucky, held agreeably to public notice, at the house of Robert Buckner, esq. on Tuesday, the 28th day of December, 1821, Abraham Hite, Esq. being called to the Chair, and William Chambers appointed Secretary, the following resolutions were then adopted:

1st. *Resolved*, That agriculture is considered by us as the true basis of national prosperity and happiness, meriting the attention of the patriotic and wise, in every section of our country.

2d. *Resolved*, That a Society be formed in Jefferson County, to be styled the Kentucky Agricultural Society, whose object shall be the improvement of agriculture and rural economy; to be composed of practical farmers, and other persons disposed to assist in so laudable a purpose.

3d. *Resolved*. That Abraham Hite, John Rowan, John Speed and Saml. Churchill, Esqs. be and they are hereby appointed and requested to serve as a committee to draft a form of Constitution for the government of said Society, and that they or any three of them report the same to a meeting, to be held at the house of Robert Buckner, on Tuesday, the fifteenth day of January next.

4th. *Resolved*, That the proceedings of this meeting be signed by the Chairman, and attested by the Secretary, and that they have them published.

5th. *Resolved*, That this meeting adjourn to meet again on the 15th day of January next.

ABRAHAM HITE, Chr.

WM. CHAMBERS, Sec'y.

What is the intrinsic relative value of Barley, Buckwheat, Indian Corn, Oats and Rye, when used as food for Hogs, Horses, and Cattle?

To the following inquiries touching the intrinsic value of several kinds of Grain, for the home use of farmers and their animals, we thankfully give place; and we fondly hope that some of our many practical agricultural correspondents, may enable us to answer them satisfactorily—that is to say, by a strict detail of their experience in the matter.

The knowledge which our correspondent wishes to acquire, is very important to every farmer; and we believe that he may soon obtain it—for that day has certainly passed by in this country, when, in connection with the interests of Agriculture, it could have been truly said, that "what was every body's business was no one's." The object at which our correspondent aims, is, we think, entitled to the notice of Agricultural Societies—they might call for and reward the most judicious sets of Agricultural experiments connected with the subject; and we persuade ourselves to believe, that it is within the power of any one of these associations to command satisfactory and very useful answers to his questions; but, meanwhile we would gladly receive such information on the case, as any of our readers may be disposed to furnish.

Editor.

FOR THE AMERICAN FARMER.

WORCESTER, MASS. March, 1822.

INQUIRY.

"Whereas our farmers usually raise a greater quantity of grain than is wanted for the consumption of their families and stock, and are frequently uncertain what particular kind of corn to dispose of, because they do not know the intrinsic value of the different species of grain; and where-as, this cannot be correctly ascertained by the market prices, which are constantly fluctuating in consequence of adventitious circumstances, I beg leave to enquire in behalf of myself and others, of you and your correspondents, what is the relative value of Barley, Buckwheat, Indian Corn, Oats and Rye, as food for hogs, horses and neat stock? satisfactory answers would enable us to ascertain what particular part of our surplus produce might be offered for sale, consistently with good husbandry. Barley, I am aware, is not often raised in this part of the country as food for stock, and probably is less valued, as such, than it should be. If it is good food for horses in the East, and history informs us that it is the only grain given to horses in Asia; it surely cannot be bad food for them in the West. I have considered a crop of Barley as more profitable, and not more exhausting to the land, than a crop of Oats; but in this opinion I may be mistaken, for I have not had sufficient experience to speak with confidence, on this subject, as I hope some one will, who can speak from his own observation.

I am Sir,

very respectfully,

Your most ob't and humble servant,

J. W. L.

THE FARMER.

BALTIMORE, FRIDAY, MARCH 13, 1822

PRICES CURRENT.

Flour from the waggon, superfine, \$64—Wharf flour \$6 per bbl.—Wheat, white, 133 to 135 cents—Red, 130 to 132—Corn, white, 70 to 71—yellow, 64 to 65—Rye, 65—Barley, 60—Oats, 30 to 40—Beans,

130 cents per bushel—wholesale—Grass SEEDS, Clover, \$8—Timothy, 45—Orchard, 3½—Herds, 3 per bushel, at retail—Saver, coarse, 54 to 65 cts—Liver-pool ground, 50—do, fine, 40 to 44 per bushel—Plaster of Paris, ground, \$7 per ton or 125 cents per bbl—Moss Beef, \$11—do, Pork, 13—Herrings, 2½ to 3—Shad, 5½ to 6 per bbl—Codfish, 3 to 3½ cts—Hams, 11—Cheese, 11—Butter, 20 to 25 per lb.—Eggs, 16 to 12 cents per doz—Cotton, Georgia Upland, 17 cents per lb.—no Louisiana or Alabama in market—Tau, 175 cts—Turpentine, 175 to 200—Roshin, 150 per bbl—Spirits of turpentine, 35 cents—Varnish, 30—Linsed Oil, 73 per gallon—Tobacco, old crop Maryland, no yellow, or fine red in market—good Patuxent red 6 to \$9—common 4 to 5—second 1½ to 3 per 100 lb. in demand—Virginia, a few hhds from Richmond were sold this week at \$6—and some from Kentucky at \$5 per 100 lb.



As the season advances, we cannot delay the insertion of the following CATALOGUE OF FRUITS, for sale by JOHN WILLIS, Esq. Collector of the Port of Oxford, Talbot county, Md. We have had occasion before to speak of the excellence of Mr. Willis' Fruit, and the great skill of the cultivator: [Ed. Am. Farmer.

CHERRIES.

1. The May or Buck Heart
2. The Bastard do
3. The Black spotted Caroon or Carone,
4. The White Grafton Cherry
5. The do. do. late do.
6. The do. Harrison Heart
7. The do. Spanish do.
8. The do. Halitax do.
9. The do. late White do.
10. The May Duke
11. The large do.
12. The late do. (Comes late)
13. The large Morello
14. The small black do.
15. The do. late do.

APRICOTS.

1. The Roman Apricot
2. The French Brussels.

PEARS.

1. The Early Pear, (comes in June)
2. The do. Red Muskedelle, (4th July)
3. The July Pear
4. The French Pear
5. The large Bagpipe of Anjou
6. The do. Musk-Boncretien
7. The French Vergouleuse
8. The Lapoire or Blessed Pear
9. The Hampden's Bergamot
10. The Autumn do.
11. The Gussie Madame, French Targonelle, or Lady's Thigh,
12. The Crasne Pear
13. The Winter Boncretien
14. The Colmar Pear (winter)
15. The Green Satin Wood Pear
16. The Winter Pear, supposed to be the Monsieur John
17. The large Pound Pear, to preserve,
18. The St. Germain
19. The Supreme Pear
20. The Little Summer do.
21. The Small Autumn do.

PLUMS.

1. The White Harvest Plum
2. The Royal Blue do.
3. The Large Sweet Green Gage
4. The Small do. do.
5. The Globe Gage
6. The Blue do.
7. The Empress Plum (dark red)
8. The Great Mogul do.

9. The Red Imperial Magnum Bonum
10. The Blue Pendragon
11. The Holland Prune, red and purple
12. The German do. large and blue
13. The Peach Plum
14. The Orleans do.
15. The Chickasaw do. for Gage Standards.

DAMSONS.

1. The Large Purple Damson
2. The Small do. do.

PEACHES.

1. The Early Musk Burgami Peach
2. The White Open Peach
3. The Milk do. do.
4. The Newington do.
5. The Large Early Newington Peach
6. The New do. do.
7. The Old do. do.
8. The Carolina Clingstone do.
9. The French Pavia
10. The do. Musketong
11. The Indian Blood Peach
12. The large White October Cling-stone
13. The do. do. Heath Peach
14. The Mignonne do.
15. The Thompson do.
16. The Virginia Cling-stone
17. The Large Red Open-stone
18. The Red cheek'd Mellectoon
19. The Lemon do.
20. The Georgia Cling-stone
21. The Small Red do.
22. The Pine-Applé Peach.

NECTARINES.

1. The Newington Nectarine.

APPLES.

1. The Early Rhode Island Apple
2. The Large Pound Pippin
3. The Golden do
4. The Holland do
5. The Newtown do
6. The Orange do
7. The Green do
8. The Poplar Island do
9. The Long English Golden do
10. Dr. Priestly's do
11. The Winter Red Streak
12. The Gray House or Gricksan
13. The Yellowish Cart House
14. The Redish do do
15. The Sweet Apple
16. The Long Island Apple
17. The Siberian Grape Apple.

GRAPES.

1. The White Sweet-Water or July Grape
2. The French do do Muscat do
3. The American Purple do
4. The Guernsey do
5. The Red Hamburgh do
6. The Jersey Black do
7. The Red or Purple Constanta do
8. The Tokay or White German do
9. The Large Red Oval do
10. The Large Black Muscadine do
11. The Large White do do
12. A fine Grape from Philadelphia, name not known.

WALNUTS.

1. The White Walnut
2. The do thin shelled.

FIGS.

1. The Genoa Figs.

I have from 15 to 20 sorts more, that I have not had a chance of knowing much of yet—besides, a parcel of Shrub Fruits, which I suppose not worth mentioning, though very fine.

I expect to receive more sorts next spring; and

such as took the attention of the people most, for the last three years, I have propagated for sale, as I have found many gentlemen wished to obtain the sorts, and when they received cuttings of me, were not always successful.

JOHN WILLIS.

Agricultural Premiums.

SOUTH CAROLINA.

The Farmers Society of Barnwell District will award the following Premiums, each to consist of Twenty Dollars, or a Silver Mug of that value, at the option of successful candidates, at their stated meeting in January 1823.

1st, For the greatest quantity of Grain, the produce of one acre of High Land.

2d, For the greatest quantity of Grain, the produce of one acre, of either Swamp or Pine Land.

3d, For the greatest quantity of Rice, the produce of one acre of either High or Low Land.

4th, For the greatest quantity of Root or Slip potatoes the produce of one acre, of either High or Low Land the acre to be square, and not more than 210 feet square; the crops must be planted and harvested, within the period of 12 months.

5th, For the best Calf, one year old, raised by the competitor and exhibited at the said meeting in January; this premium to be continued annually, until the animals reach the age of five years.

6th, Also a Premium of Ten Dollars, or a Silver Mug of that value for the best Hog, raised by the competitor, not more than one year old; this premium to be awarded annually until the animals reach the age of three years. Should the animals exhibited not be deemed above mediocrity, the Society will not award a premium. Relative to the Crops, a detailed account of the mode of culture and preparation of the land, is requested. It is expected all candidates will produce such testimony as to prevent any doubts relative to the correctness of their statements, in regard to the age of their Animals, and the produce of their Fields.

JOHN S. BELLINGER, President.
JENNINGS O'BANNON, Sec'y.

Barnwell Court House, Jan. 29th, 1822.

SEEDS.

Fresh, new and good—the growth of 1821.

JOSEPH P. CASEY,

SEEDSMAN, &c.

Has received from London, Liverpool and Harlem, an early supply of

GARDEN SEEDS, &c.

By New York—including the following:
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12 do of early and late Raddish, long & short, red, white and black
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200 do of other vegetable do
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AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICE CURRENT.

"O fortunatos numquam sua et bona norint
"Agricolae." VINO.

VOL. III. BALTIMORE, FRIDAY, MARCH 22, 1822. NUM. 52.

AGRICULTURE.

From the Bath and West of England Society Papers,
Vol. X.

AN ESSAY ON MANURES,

BY ARTHUR YOUNG, ESQ.

(CONCLUDED.)

CHAPTER II.

§. 3.—Coal-Ashes

Are used all over the kingdom. The quantity is from fifty to two hundred bushels per acre. All sorts of ashes have been found most effective when spread on clover, sainfoin, or other seeds in the spring. They are good also on grass lands, and are by many used on green wheat. The effect is considerable in Hertfordshire, of fifty to sixty bushels on dry chalk lands. They answer best of all on dry, sound, rich loams; and on clays, and wet gravels, and loams, they make a very poor return. Mr Dan, of Kent, compared the finely-sifted ashes of London with the coarse ash and cinders of Chatham barracks, not kept under cover, and these last much exceeded the others in value. These ashes contain carbon and hydrogen, a great quantity of carbonic acid gas, and some iron. Our knowledge of them and their properties is very imperfect.

§. 4.—Soot.

This substance is composed of oil, volatile alkali, carbon, and earth; consequently, of hydrogen, nitrogen, carbon, and phosphorus. No wonder therefore that it should be found a very powerful manure. All its component parts are also in a state of such minute division, that they are not only washed into the soil by a single shower, but convertible immediately into the food of plants. The effect is visible after rain in a few days. Twenty bushels per acre are the more common quantity, applied in the spring to green wheat or clover. The effect is great on moist soils, least upon strong or wet clay.

§. 4.—Peat-Dust.

If the peat be black and solid, it is resolvable into a greater proportion of hydrogen gas than most other substances. And as it will hereafter be shewn that this gas is one of the most powerful manures which can be applied, it is consistent with chymical principles that it should operate as a strong manure. Many peats contain also much iron; and consequently, if the soil be deficient in that substance, it must be further beneficial. Another quality is its strong attraction of humidity, which renders it very advantageous on dry sandy soils. The use of it as a manure is by no means so general as it might be. But in Bedfordshire, and the neighboring part of Hertfordshire, this application of a very ferruginous peat is well known and practised.

Some scattered experiments have been made which are interesting.* Mr. Farry asserts it to be the best possible dressing for onions.

§. 6.—Potash Waste.

The makers of pot-ash, if they do not farm themselves, sell large quantities of their waste, which consists of lixiviated wood-ashes. They are not a powerful manure; and no wonder, after the alkaline salt is extracted. Ten loads an acre, or three hundred and fifty bushels, are a common quantity. They

do good on low meadows, and in general on all grass lands.

§. 7.—Sugar-Baker's Waste.

I never tried this manure, but I have been informed that it is a powerful one. There are not more than five or six places in the three kingdoms where it is to be procured. I have not yet found that sugar itself acts as a manure, which however demands further trial, as it ought to be powerful.

§. 8.—Tanners' Bark.

The tanning principle is I believe in all cases hostile to vegetation. Whatever benefit is derived therefore from the application of tanner's waste, must arise either from the lime or the animal impregnation. I have tried bark more than once, to the quantity of two or three wagon-loads; but I could not perceive the smallest benefit derived from it during two years. Whether or not it afterwards yielded any, I am not able to speak; and it would depend on the manures afterwards added. If useful any where, it ought to be on calcareous soils. Mixed with lime, it has been found useful in Warwickshire.* With Mr. Townley it did mischief. Land without manure gave 34 bushels; with stable dung 315; bark 35.†

§. 9.—Malt Dust.

There is no part of the kingdom in which this substance is not applied as a manure, and every where with success. Besides this general experience, a few particular experiments have been made on it. Mr. Flower, of Nottinghamshire, compared, 1. malt-combs, 2. ground bones, 3. horn shavings, 4. stable-dung, 5. salt, 6. Van Kaake's powder, on Grass Land. The order of success was, 1. malt-combs, 2. stable-dung, 3. and 4. horn shavings and bone dust, which were equal; salt, and Van Kaake, good for nothing.† Mr. Middleton, upon a tenacious loam on a yellow clay bottom, tried from fifty to sixty bushels per acre, and found the benefit considerable, ensuring one large crop. But on meadow with hay at 45, a ton, it only repaid the first cost.‡ Lisle, who was a truly practical farmer, used this manure for many years. Eighty bushels an acre exceeded dung on clay land for wheat, and gave an improved barley crop after. It gave a great improvement on cold grass, and also. The *kuln* dust that comes through the hair cloth was used; the tail dust was applied to feed pigs. From twenty forty bushels per acre are applied in Hertfordshire. I have used it various times, and on several soils, and always with success.

The effect may be attributed to two circumstances. First, it has undergone heat which we have found may have effect, the causes of which are not well understood. Secondly, and chiefly, it contains portions of the germinating parts of the barley in the saccharine state; and containing hydrogen and carbon, cannot fail of yielding the direct food of plants.

§. 10.—Rape Cake

Has been in common use in Norfolk for above fifty years, and the quantity very generally, while it was to be had at 44 and 44 10s. per ton, was half a ton per acre. But it has of late years been of double that price, and the quantity per acre has been lessened in proportion as the price advanced. A ton is now applied to three acres; and by a very useful practice of Mr. Coke's, (that of drilling it in powder with turnip seed) he makes a ton do for five or six acres. Before this invention it used to be broken into very small pieces, and in that state ploughed in

about six weeks before the seed earth, to give it time to dissolve in the soil. Ploughed in with wheat seed it hath been found more forcing to the crop than either dung or fold; but the turnips after the wheat have not been so good as after those manures.* The Marquis of Exeter† compared two quarters per acre of rape dust, at 200s. per quarter, against two dressings, one of yard dung, the other of lime; the soil a creach lime stone; the rape dust superior. Malt dust and soot for wheat were equal; but rape dust better than either. The operation of this manure is assignable to a very obvious theory. All oleaginous bodies abound greatly with hydrogen and carbon, their utility consequently must be great.

CHAPTER III.

Of Fossil Manures.

The substances most commonly purchased as manures in this kingdom, of this nature, are few. There are none that demand attention, except,

1. Coal-ashes. 3. Gypsum.
2. Salt. 4. Lime.

The first of these, for reasons already given, has been classed with other ashes, and the fourth treated of in the first division of this memoir.

§. 1.—Of Salt.

By various experiments, and by observations made apparently with care, but too numerous to be detailed;‡ it is decided, that sea-salt acts as a manure in some cases to a degree that proves its excellence, when properly applied. I am aware that other persons have reported unfavorably of it; but the general knowledge of this manure is in its infancy, for want of more trials being satisfactorily made. Several prove that the quantity applied should be very small, and that quantity is not ascertained. Errors therefore may easily be made in this, as well as in other points, and cause those unfavorable reports which more care and attention would have prevented. I have, during several years, made experiments on this substance, and scarcely one that did not tend to convince me of the fact that it is a powerful manure; and especially when added to any dung or dunghills; and I was so much convinced of the fact as to strew a small portion to all yard manures at the time of filling.

If with these facts of practice we combine certain chymical ones remarked by eminent writers, we shall not hesitate upon the point, but clearly perceive that such results are conformable to the nature and properties of this substance.

"The application of sea-water to vegetables generates putrescent hepatic gas, caused by the mixture of vegetable juices with the vitriolic neutral salts contained in sea water. Muriat of magnesia forms one-fourth of the saline matter of sea water. Very considerable benefit has been experienced from its use in promoting vegetation, when mixed with dung or compost dunghills. It possesses a septic power that promotes putrefaction."§

* Annals, vol. ii. † Ibid. vol. xxix.

‡ To render these papers as brief as I can, I shall only refer to the authors who report this fact.—Roaf's Addenda to Manures, 4 to 35 Hunter's Evelyn, p. 43. Bishop Watson's Chymical Essays, vol. ii. p. 75. Wight, vol. i. p. 246; vol. iii. p. 302. Baker, p. 15. Boerhaave, p. 106. Hollingshead, p. 27, 38. Communication to the Board of Agriculture, vol. i. p. 361. Annals, vol. i. p. 147, 260; vol. iii. p. 19; vol. v. p. 149, 537; vol. xxviii. p. 200, and many others.

§ Lord Dundonald.

* Report. † Farmer's Magazine, vol. iv.

‡ Report. § Society's Transactions, vol. xvii.

* Annals, vol. xx. Wright's Husbandry, vol. iii.

"One hundred parts of sea salt contain fifty-three parts of alkali, (soda) and forty-seven of acid."†

"Sea salt acts probably as an assistant to putrefaction."‡ "One ounce in twelve accelerates that of animal substances."§ "The conversion of sea salt into an alkali by pu refaction leaves no room to doubt of its benefit."¶

André and Parmentier are against salt, and yet prove that putrefaction decomposes muriatic salts.‡ Did they ever try soda?

§. 2.—Of Gypsum.

I know not any manure concerning which the reports of experimenters have been so contradictory as in the case of gypsum. Many persons have asserted that it is no manure, and that on trial no benefit whatever has resulted from its application; whilst others have registered series of experiments for years, in which it has been almost uniformly advantageous.

In this state of our knowledge we are bound, as in the preceding section, to accept the favorable reports, and attribute the failure to soil, season, or some unrelated circumstance. In the 5th volume of your Society's Transactions are recited, from American and other intelligence, many valuable facts, proving the importance of this manure. In various foreign publications, accounts are detailed of similar results in Germany, where the trade in this commodity has so much increased as to occasion new transit duties to be laid on it by several princes. In the Transactions of the New York Agricultural Society the reports are numerous, and the results such as will not permit any doubt of the benefit derived from the use of this manure.

The following are Mr. Logan's conclusions from various trials: 1. That there is no difference between European and American gypsum. 2d. That it acts as an immediate manure to grass, and afterwards in an equal degree to grain. 3d. That one dressing will continue in force several succeeding crops. 4th. That it does not produce any remarkable effects used as a top-dressing for grain. 5th. On stiff clay soils it will produce an increase of vegetation, but not sufficient to pay the expense of the manure.

Mr. Clavelier's Livingston's conclusions from many experiments are, 1. That gypsum in small quantities, has no visible effect on wheat or rye. 2d. That it is uniformly beneficial to Indian corn, unless it be in very rich or very wet soils. 3d. That it is beneficial to flax on dry, poor, sandy land. 4th. That it is particularly adapted to the growth of clover in all dry soils, or even in wet soils in a dry season. 5th. That it has no effect in the vicinity of the sea.

But the most extraordinary account of this manure is from Mr. Smith, of Kent, communicated to the Board of Agriculture; in which the profit of it is stated to be immense on clover, lucern, sainfoin, and several other crops.

That various results should be experienced, and even on the same soil, appears probable from a trial of three years, registered in a periodical work,* in which it gave no increase in two years trials, but a very considerable one in a third year's trial, caused probably by a heavy rain soon after the application.

The quantity per acre seems to have been very generally about six bushels.

Of Composts.

Experiments on mixtures are so extremely difficult to make, so as to be attended with accurate results, that I must, under this head, do, what is ever to a degree unsatisfactory—reason upon the question. I cannot bring my mind to conceive the use of composts.

If to spread earth, peat, or a calcareous substance, where a dunghill is intended to be made, to retain urine that would otherwise be lost, this is right; but as a compost it has nothing to do with the question. To spread a thin layer on the surface of a dunghill, to retain the gaseous effluvia which would otherwise

be dissipated, this also is right; but it bears not upon the enquiry.

It is said that certain substances promote fermentation, therefore I would not add them. Fermentation yields the gasses which fly off into the atmosphere; the nose explains this sufficiently. If unfermented substances were annihilated under the furrow, previous fermentation would be necessary; but we know that the contrary is the fact; and that not an atom is lost. By mixture a *tertium quid* is sometimes formed, but nineteen times in twenty this is gaseous and dissipated. The only rational pretence for a compost is in order to gain any additional substance. But to get rid of an evil; suppose the mud out of a pond is found to be sterile from acidity, it would be right to add pot ash in any of its forms, or lime, or chalk; but here ends the benefit of composts. I do not admit, till experiments are more decided, that the circumstance extends to peat. It is at least doubtful, as the application of the substance has been found highly beneficial without any such mixture. I know of no experiments that are in the least decisive of advantages, which may not be fairly attributed to the separate and detached application of the substances mixed. I have not been inattentive to that mass of ingenious theory, the Chapter on Manures in Darwin's *Phytologia*; some passages in which might be quoted against these ideas. But I conceive, the only possibility of promoting science is to rely on the facts, and to confine theory to conclusions drawn from them.

However, I like so little mere reasoning on any agricultural question, that I shall not extend these observations.

On the Food of Plants.

All organized bodies are resolvable into hydrogen, nitrogen, oxygen, carbon, phosphorus, and sulphur.

Mr. Berthollet's great discovery, that the essential difference between animal and vegetable substances is the former containing nitrogen, the latter none,‡ reduces the list of component parts.

By a series of well known experiments of Ingenhousz, Senecier, &c. oxygen appears as it were to be excrementitiously thrown off by vegetables in sunshine, to the great purification of the atmosphere for the use of animal respiration, in which operation the vegetable decomposing a noxious gas absorbs what would injure respirable air, and leaves that which benefits it: a remarkable instance of that Divine Wisdom, which appears the more clearly, in proportion as the works of creation are examined.

From experiments extremely numerous, and observations made by eminent chymists, it appears, that the two substances which play the greatest parts in vegetation, are hydrogen and carbon. The presence of light and heat is always to be supposed.

In the list of Manures which have been detailed in the preceding chapters, some have been noticed as acting mechanically, giving either friability or tenacity, or powers of promoting fermentation; the product of which is carbon or hydrogen. Those which actually feed vegetables abound with, or are reducible to, these substances.

The importance of water in vegetation needs not to be insisted on. The immediate decomposition of this compound substance by vegetables, has not been clearly elucidated. But Senecier notes the great probability that the hydrogen combining with carbon forms oily and resinous matters; and we know that oxygen is thrown off by leaves. Chaptal, and Dr. Pearson, expressly declare this decomposition. Of these two substances, hydrogen and carbon, of such undoubted importance, to which of them are we to assign the great effects observable from their application? Haz nfratz, and Mr. Kirwan, are decided for carbon. But Dr. Pearson combats the idea, and contends, that there is no evidence of carbon proving nutritive, but when it is united to hydrogen and oxygen in vegetable matter; or to oxygen, hydrogen, and nitrogen, in animal matters.

Experiment has shewn, that water impregnated with carbonic acid is beneficial, and that carbonic acid gas

has had a good effect. The conclusion to be drawn is not decisive; for in all these trials hydrogen might and probably did enter.

It appears by many experiments, that the fertility of soils is in proportion to the quantity of hydrogen gas they yield in distillation; and the efficacy of manures is pretty much in the same proportion. Powdered charcoal distilled yields a great quantity of hydrogen gas.

Hydrogen gas, obtained from filings of iron by sulphuric acid, I have often found highly beneficial to vegetation. I do not assert that even in this case it is positively free from carbon, but the quantity is by far too small to permit the effect to be attributed to that substance.

An observation of Fourcroy throws no inconsiderable light on this subject. "Charcoal," says that eminent chymist, "decomposes water, having a greater affinity with oxygen than it has with hydrogen."

This circumstance explains much of the difficulty which attends the insolubility of charcoal in water. Mr. Kirwan says, that the grand desideratum is to discover the means of rendering charcoal soluble in water.

Dr. Ingenhousz says, that it is totally insoluble, and almost unalterable. But it is evident, from the observations of other chymists, that some bodies exist possessing this power. Pot-ash has this effect, according to Mr. Thomson.* And Mr. Davy and Senecier remark the same thing of pure alkalis, but not when combined with acids. Dr. Darwin also remarks, that "carbon absorbs with great avidity all putrid exhalations." These consist chiefly of ammonia, hydrogen, and carbonic acid, and are the immediate products of the dissolution of animal or vegetable bodies. Hydrogen and nitrogen produce ammonia, which, combining with carbon, may form a hepatic carbon; and by thus rendering carbon soluble in water, may much contribute to the growth of vegetables.† In another passage Senecier says, "he has found it insoluble in water, and that alkalis alone have the power of dissolving some particles."‡ Mr. Davy remarks also, that "charcoal and water in a bottle give out slowly some heavy inflammable air." Here is the interesting circumstance. If the solution of charcoal in water, whether by time, pot-ash, or contact with soils, be attended with the extrication of hydrogen gas, no wonder that charcoal should act as a manure.

I have now before me four and twenty tumblers of water, with plants growing through pierced cork floats. Different substances are added to each; among others charcoal, which evidently acts as a powerful manure. But the superiority over the glass which has no addition, is nothing in comparison with that of plants in another apparatus, in which hydrogen gas, from iron filings and diluted sulphuric acid, is thrown up to the roots every day. The superiority here is striking to every observer.

That there is still some difficulty, must however be admitted. Chaptal observes, that gas extracted from a mixture of sulphuric acid and iron, holds more or less of charcoal in solution, because iron itself contains it.‡ The desideratum seems therefore to be the application of hydrogen free from carbon, as the means of really ascertaining to which substance the effect is to be attributed.

In what degree hydrogen is contained in, or formed by other substances which act as manures, is an enquiry of great importance. It is remarked,§ that sulphuretted hydrogen is the base of the muriatic acid. Berthollet gives hydrogen as a component part.

No ammonia is fresh, but much in fermented urine.‡ One-fifth of ammoniac is hydrogen gas.¶

The salt obtained from plants does not consist wholly of pot-ash. Sulphat of pot-ash, muriat of pot-ash, sulphat of lime, phosphat of lime, are found in the ash, &c.**

Pot-ash is composed of lime and hydrogen; soda, of magnesia and hydrogen.†

* Chemical Essays, vol. iv.

† Senecier also observes, that iron enters into the composition of inflammable air.

‡ Manchester Memoirs, vol. v. § Fourcroy
¶ Berthollet. ** Thompson. [Guyton.

† Kirwan. ‡ Bishop Watson. § Pringle.

¶ Model. ¶ Senecier. * Annals.

* It is a constituent in a few plants.

Magnesia is composed of lime and nitrogen; consequently, of carbon, hydrogen, and nitrogen.†
Gum is composed of oxygen, hydrogen, carbon, nitrogen, and lime.‡

Oils are composed of carbon and hydrogen.¶
By putrefaction, hydrogen gas is emitted in abundance.

Connection between inflammability and sulphuric substances.

If these combinations be well considered, it will appear that hydrogen is found in a very considerable number of substances which are used as manures; and that there must be some difficulty in finding a single one that does not contain, emit, or attract it.

The time allowed by the Society would not admit of much exertion, except in the closet. It was incumbent however on a candidate to do what the short period permitted. I therefore formed the plan of some trials which might possibly throw a certain degree of light on the most interesting of those inquiries.

1st. The question relative to long and rotten dung appeared particularly interesting. I therefore compared straw cut into chaff, and applied to earths in different circumstances for barley; and the earth without any manure producing grain as 9. The straw steeped three hours in fresh urine produced as 50; steeped fifteen hours, produced as 63; steeped three days, produced 125; and applied dry, produced 39. In weight of straw and grain, the plain earth giving 48; that of three hours 120; that of fifteen hours 150; that of three days, 300; and dry 100.

The result relative to urine is such as might be expected. But that dry straw should so much increase the produce, seems to prove as clearly as one experiment can do, that every atom of vegetable matter in the soil begins to be decomposed immediately, and to want no previous fermentation in order to enable it to feed plants.

2d. Such eminent chymists have assigned to carbon so much importance as the food of plants, and its solution in water considered as a desideratum, that I compared it under different applications. The plain earth giving as above 9 and 48; dry powdered charcoal gave 26 and 90. Pearl-ash and charcoal in equal quantities, mixed and applied dry, gave 46 and 100. The same mixed in equal quantity, and shook in water, gave 28 and 115; but the pearl ash being applied, as I conceive from different trials, in too large quantity, killed four-fifths of the plants. Had this not been the case, the proportional produce would have been 140 and 575. The result in any case remarkable; pearl-ash being named by the chymist as having little effect in dissolving charcoal; thus applied to the soil, it seems to have had a very great effect. I should have remarked, that though pearl-ash, applied either alone or with charcoal, might easily be hurtful by an over-dose, yet this was not the case with the nitrate of pot-ash, (pearl-ash and spirits of nitre in equal quantities) which greatly promoted vegetation, giving 82 and 185; common nitr., 35 and 84.

3d. The result of various experiments on gypsum, in different countries, having been extremely contradictory, I was anxious to analyze its proper application. The earth, without addition, giving as above 9 and 48; gypsum alone added gave 61 and 160. And in another experiment applied in water, it doubled the force of vegetation. These results were very contrary to my expectation.

4th. The accounts we have had of common sea salt are as contradictory as that of gypsum. The plain earth yielding as above 9 and 48; salt alone, applied in different quantities, gave 40 and 96, 50 and 120; and 8 and 90, 36 and 100, 31 and 75; but with addition of chalk it gave 68 and 175, and 40 and 120. The result upon the whole very decisive.

5th. At the same time, with the preceding trials, some other substances were under experiment. The

plain earth, giving as above-mentioned 9 and 48; soda gave 81 and 210, a remarkable result; bay-salt 63 and 149; iron filings, 40 and 100; magnesia, 50 and 120.

If it be asked what is the practical use of such acquisitions? the premium offered by the Society answers the question. Is it conceived that so enlightened an assembly of patriots want to be informed that dung, and marle, and lime and night-soil, and malt-dust, act as manures? And would they demand an account of the nature and properties of substances, if the common knowledge of every sensible farmer was all they required? Their views are evidently more extensive, and more philosophical. The more carefully these substances are analyzed, and the more intimately we examine the effect of combining them with different soils, the better will this branch of agriculture be understood. This is to be effected only by the application of chymistry, going hand in hand with the vegetating process. Very few chymists have been farmers; we can therefore do no more than combine the facts discovered by one set of men, with the result of the observations made by another set.

But *virtus acquiritur evadit*, knowledge advances; and the turning the attention of curious enquirers to the subject, in the manner which the Bath premium, it is to be hoped, will excite, cannot fail of throwing some light on a subject which will demand an age of experiments fully to elucidate.

For the American Farmer.

Internal Improvements. NEW-YORK AND OTHER CANALS— ROADS, &c. No 2.

We will now pay some attention to what is done, doing, and about to be done in other places.

As it is altogether consistent with human nature to submit with reluctance to circumstances which produce pain, inconvenience or mortification, it is hardly to be expected that Philadelphia and Baltimore will yield to their supposed destiny without a struggle. Great exertions have been recently made to improve the road from the former to Pittsburg. The latter has the advantage of a complete turnpike, the whole distance to Brownsville on the Monongahela, and thence to Wheeling on the Ohio, except about ten miles, which it is believed will very soon be made; the section that lies west of Cumberland is the national turnpike and is at present free of toll. The probability is that none ever will be paid except what may be necessary to keep it in repair. Now as these turnpike roads are frost proof and drought proof, it will not be surprising if the wily little merchants of these cities, should attempt to interfere in the trade, during those fractions of the year in which the intercourse with New York will be suspended by the two above mentioned agents; say four months by frost, and three by drought; during these periods they will probably be busying themselves in despatching their wagon loads of such valuable goods as will best bear the price of transportation.

The state of Virginia, amongst numerous other works in which she is successfully engaged, has projected a canal of nearly 250 miles in length, from Richmond to the mouth of Dunlap's creek, on Jackson's river, at the eastern foot of the Allegany mountain. Thence an

easy road of eighty nine miles to the falls of the Kanawha, from whence it is ninety four miles to Point Pleasant, on the Ohio. With a little improvement, the Kanawha will afford an excellent river navigation of three feet water, at all times. The canal is commenced and has progressed as fast and as prosperously as could reasonably have been contemplated. It is believed that by the end of the present year it will be completed quite above the coal district, which will be a very important section. The whole of the road is contracted for, and the funds for improving the Kanawha are in hand and the work in a train of execution.

By this route the Virginians expect to transport from four to six millions of bushels of coal per annum, and probably in time a much larger quantity: An immense quantity of Tobacco, wheat, flour, and other agricultural products; also large quantities of lumber, iron and other mineral products: These will be drawn from more than twenty counties in their own state, all of which they expect to supply with merchandize, plaster, &c. through the same channel. And previous to the discovery that New York is in future to engross the whole of the trade of the Mississippi valley, they had ever looked to a participation in the western trade. We will amuse ourselves in examining their pretensions on this subject.

In this examination we will take the introduction for our text book, and be governed by the New York rates of canal and river navigation. The cost of transporting a ton of merchandize from Albany to Buffalo, 553 miles, is stated at \$8 ¹/₂. Then from Richmond to the mouth of Dunlap's creek, 250 miles, the cost will be \$6 ¹/₂. From the latter place to the falls of Kanawha by a complete road \$9 ³/₄. This item is obtained in the following manner: It is stated in a pamphlet published by J. E. Howard of Baltimore, in 1818, that it had been ascertained by several millers in and near that city, that on an average of a number of years previous to that time, "The expense of supporting a team of six horses, including interest on the purchase money, driver, wagon, repairs and "keeping up the team," was found to be about \$1200 per annum. Since that time there must have been a reduction in these items of at least one third, which would reduce the whole to \$800, and of course it would be still lower at a distance from market. But we will state the expense at \$1000. Then if the 89 miles are travelled in five days with a load of three tons, the work of 300 days will give \$5 ⁵/₆ per ton for the nett cost of transportation. But we are willing to allow the teamster 50 per cent on his capital and expenses, which allowing \$1 for toll, will raise it to \$9 ¹/₂, the sum before stated.

It is said in the introduction that a barrel of salt can be carried from Pittsburg to Louisville for 19 cents, which at seven barrels to the ton is \$1 33.

This distance is 700 miles, from the falls of the Kanawha to the Ohio is but 94 miles of at least as good navigation, and of course a ton might be carried this distance for 19 cents. But as a small toll will probably be demanded

† Hibd. † Thompson. † Lavoisier.

* The soil in which the trials were made, on being analyzed was found to consist of (500) grains.

Sand - - - - - 136

Clay - - - - - 364

Carbonate of lime - - - 0

after the river is improved, we will state the transportation on this section at 78 cents.—Then supposing the contemplated improvements completed, the cost of transporting a ton of merchandize from Richmond to the Ohio, and the time it will require will be

On the Canal	11 days	\$6 04
On the Portage	5	32
On the Kanawha	4	78
Time in loading and unloading	4	2 50
	days 24	\$18 64

Add to this another dollar and it will carry a ton weight of produce, from the Ohio to Richmond, (say) \$19 ⁶⁴/₁₀₀.

The following is the estimate given in the introduction relative to the time it will require for produce to pass from the Ohio to New York, when the Western and the Ohio canals are completed, and the expense per ton.

	Time. Freight per ton.	
From the Ohio river	10 days	\$6 65
Lake Erie to Buffalo	1	4 00
Buffalo to Albany	15	12 06
Albany to New York	7	4 00
Time in loading and unloading &c.	7	4 00
	days 35	\$26 65

In each of these columns there is evidently an error in the addition, when these are corrected the time will be 40 days, and the expense per ton \$30 ⁷⁸/₁₀₀. I should have supposed, however, the expense from Buffalo to Albany ought to have been put at \$8 ¹³/₁₀₀, correcting this also, the expense will stand at \$27 ¹⁸/₁₀₀. But it appears to us that one day is a very short time for the passage from Sandusky to Buffalo. In another part of the introduction it is stated, that the cost of transportation from New York to Sandusky will be \$24.—The distance to the Ohio by the Virginia route is 433 miles. By the New York and Ohio canals nearly 1000.

Now, from estimates of this kind, the Virginians have contended that they could place a ton of merchandize on the bank of the Ohio, or could transport a ton of produce from thence to Richmond in much less time, and for considerably less money, than either could be done from and to New York, by way of the Western canal. They have also said that they have greatly the advantage in relation to certainty and safety; inasmuch as their route will seldom be interrupted by frost more than one month in the year, and that on no part of the line will their property be exposed to any thing like such a dangerous passage as must be encountered on Lake Erie.

They have even contended in addition to these, that both the time and expense from Richmond to the Ohio, will be less than it can be from New York to the Lake shore on the opposite side of the state.

But there are another set of projectors, who (previous to the late discovery) had been making their calculations to participate in some degree at least in the trade to Brownsville and Pittsburg. These are the citizens of the district of Columbia, and others who are interested in the improvement of the Potomac

river. It is very well known that the tide water of this river approaches much nearer the navigable waters of the west than on that of any other Atlantic river in the union. These people have been busily employed in getting up a scheme for constructing a canal from the District to Cumberland, 188 miles. We suppose they may have indulged in something like the following calculations relative to the western trade in case their project should succeed.

Agreeably to the New York estimate, a ton of merchandize would be transported the whole length of this canal for \$4 ⁶⁴/₁₀₀. From Cumberland to Brownsville on the Monongahela is 74 miles, of national turnpike the whole distance. This will be travelled in four days by a team of six horses, carrying three tons, which at \$5 per day will be \$6 ⁶⁸/₁₀₀ per ton; adding 1 dollar for toll, will make it \$7 ⁶⁸/₁₀₀; and that teams of this description can be had in these times at this rate, by giving constant employment the whole year, there appears to be no doubt, This estimate, though made from different data, agrees with the calculation made for the Virginia route, within less than one cent per day. From Brownsville to Pittsburg, is 55 miles by water, the navigation generally good; there are however a few ripples that become shallow in dry seasons, which will probably soon be improved by the state of Pennsylvania; the work is already in a state of progression; and when done, it will rarely happen that the navigation will be suspended for want of water. Agreeably to the New York calculation for carrying salt from Pittsburg to Louisville, a ton weight would be carried through the whole of this section for a few cents. But to average the descending and ascending freights when a large trade is established, it will certainly not amount to more than one dollar per ton. The account will then stand thus:

For freight and tollage on the Potomac canal	\$4 54
Wagonage and toll to Brownsville	7 68
Freight to Pittsburg	1 00
For which add for loading and unloading and storage at Cumberland and Pittsburg	2 50
	\$15 72

The time that would be occupied between the most distant points, allowing two days detention at Cumberland, and the same at Brownsville, would be about 19 days. But the intercourse on this line would probably be interrupted about two months in a year by ice.—It is stated in the introduction, that the expense per ton from New York to Pittsburg by way of the Western Canal, will be \$35. The time that will be occupied is not given, but it cannot vary materially from the time given for the route to Ohio by way of the Ohio canal, before mentioned, which is 40 days. The distance from the District of Columbia to Pittsburg is 317 miles; from New York by the route proposed it is more than 800. On the former line it is supposed the intercourse will continue uninterrupted ten months in the year; on the latter five months is considered a full average.

When the Potomac canal is completed, it is to be expected that the hawk-eyed and jeal-

ous Baltimoreans will soon endeavour to avail themselves of the facilities that this new channel will afford for an increase of their trade, and consequent acquisition of wealth. The means will be found in a canal from the Patapsco to the Eastern branch of the Potomac; which it is believed may be easily accomplished. The ground is low and comparatively level; feeders may be drawn from the high grounds a few miles above.

Seeing then that some difficulties may possibly occur in opening communications between the western canal and the Mississippi valley, which seems hitherto to have been entirely overlooked; seeing that Philadelphia with her turnpike roads and perhaps her Susquehanna; Baltimore with her turnpikes and her Patapsco canal; Georgetown, Washington, and Alexandria, with their Potomac canal and Cumberland road; Richmond with her James River, and Kanawha connexion, may each set up some pretensions, and at least be a little troublesome; and above all, seeing that if all the merchandize necessary to supply the Mississippi valley, and all the surplus agricultural products that may be produced in that country, together with its mineral products and manufactured articles, are to pass through the western canal, in addition to its natural and legitimate trade, agreeably to the views exhibited in the introduction, it will frequently be totally inadequate to accommodate such a trade.—The locks will not be able to pass the boats, and probably some of the feeders will fail to give a sufficient supply of water. The state must therefore be put to the expense of erecting other locks along side of those first constructed, and perhaps in some instances be obliged either to find out or create new sources from whence to obtain a supply of water.

Now, in order to obviate all these inconveniences, and in some instances mortifying circumstances, we would with great deference propose the following magnificent plan.

Let New York abandon the idea of carrying on all the trade of the Mississippi valley, both export and import, by means of the western canal; and let her in conducting this branch of commerce, avail herself of those other vastly superior means which her southern neighbours in their wisdom are endeavouring to apply to their own uses. These are the Potomac and James River canals. But these southerners are slow in their movements, therefore let New York embrace the lucky moment, step in with a few ad millions, men, oxen, &c. and assist these people in the execution of their projects, or take the business entirely out of their hands, and complete them on her own account. When done, let her plant one little colony of merchants in the District of Columbia, and another at Richmond; where they will be able as we have already seen, to conduct this trade on behalf of the mother city, through these new channels, at a much smaller expense, and with far greater safety and certainty, than by way of the western canal. These merchants will of course import their merchandize direct to those cities, and export the western products thence to foreign parts. If this plan is adopted no time should be lost; we have

seen that New York can perform an immense quantity of work in a single month, but she can perform much more in twelve; may we not then hope to see in the rolling round of another year, these two little jobs completely executed, and the sagacious adopters of our plan sailing pleasantly down the full tide of successful experiment.

We will conclude our observations very much as we began, by expressing, with great sincerity, our respect for the state of New-York, for having as we believe, in the planning and execution of her canals, given a truly noble example to her sister states, by which they cannot fail to profit. But as we believed that she was generous and magnanimous, as well as enterprising and persevering, we did not suspect that she had it in prospect to monopolize the whole export and import trade of the great valley before mentioned, in which other states had fondly hoped to participate. And really, on reflecting a little more seriously on the subject, we begin to think she never had. That we may have been led into error, from the circumstance of one of her eulogists possessing, with talents of the first order, a temperament rather too sanguine. If so, it might seem that we have been engaged in an unnecessary discussion, and volunteered advice without an occasion. We will, however, take some comfort from the consideration, that we have advanced nothing but what has truth for its basis; and if those whom we supposed were immediately interested, are not profited by the discussion, perhaps it may be useful to others.

If we yield to this view of the subject, and we sincerely hope it is a correct one, then we have to advise Virginia, Maryland and the District of Columbia to use great exertions to complete the important works they have in prospect themselves, as early as possible; and that New-York, New-Jersey, Pennsylvania, Delaware and Maryland cordially unite in all proper measures to open the Karitan and Delaware canal, the Elk river and Christiana canal, and the Patapsco and Eastern Branch canal. Each of these should have at least seven feet of water throughout.

A Pittsburg trader might then purchase a part of his goods at New-York, put them on board a sloop fitted for the voyage, come on to Philadelphia, thence to Baltimore and Washington, adding what suited him at these places; then putting them on board of a canal boat, would find them at home within a few days of his own arrival on horseback, or in the stage. And by the same route, forward his own produce to the market where it would command the best price.

By the same line these cities might communicate with Norfolk, Petersburg and Richmond, without going to sea; and also through the Dismal Swamp canal, into the interior of North-Carolina.

These united efforts would exhibit a spectacle worthy of an enlightened people, living under the best of governments, who perfectly understand their own interests, and who are also actuated by the laudable desire that posterity may profit by their labors.

LOOKERS ON.

FOR THE AMERICAN FARMER.

On the use of Plaster.

Mr. Skinner,

We farmers generally prepare our clover land for a wheat crop, by ploughing down the second crop of clover the last of September, harrowing the ground the same way it has been ploughed, and then sow the grain and harrow it in, and plaster it on the surface either in the fall or spring. I have for the last two years tried a different method, and have found very superior advantages to the crop from it. In September when the second crop of clover is ripe, I turn in a full crop six inches deep, (having suffered no stock to range over and feed it down,) after first sowing on the clover lay from one and a half to two bushels of plaster to the acre, which is done just before it is ploughed down; then harrow the ground the same way it is ploughed, after which I sow the wheat and harrow it in well. I find by this mode of cultivation, that the plaster acts on the vegetable matter and decomposes it in a very short time, the fermentation which it causes in decomposing, creates a gas, which in passing through the clod to the surface, impregnates the mass with all its qualities, leaving the whole stratum enriched by its manuring quality, the roots of the plant shoot downwards, into a bed of manure. The bud grows off with great vigor and strength, and insures a good crop, unless indeed it be arrested by the fly, so destructive to our wheat crops. I find however by this process, the fly has less power to act, the vegetation in the spring of the year is so rapid that it gets a head of the fly and the injury is less perceptible. If this hint be useful to any one, I shall be gratified. G. W.

From the same.

Several years ago I paid a visit to the late doctor Charles A. Warfield of Anne Arundel County. It was in the month of August; on entering the lane that leads up to the house, on my right was the finest field of corn I had seen. It attracted my attention so much that I observed to the doctor that his corn crop, was superior to any I had ever seen, that I was astonished, as I had believed the ground was not very strong. He replied that he had just returned from the Berkley Springs, and had passed over some of the best lands in Berkley and Jefferson counties, where he had seen no corn equal to his own. That he was satisfied with his own land, poor as it might be thought, and would not exchange it acre for acre for the best estate in Berkley county. That he was nearer to market than they were, and that he had discovered a secret by which he could make his poor lands produce corn equal to theirs, at a very small expense, he further said, "I have reflected much on the effects of plaster upon different soils and it appeared to me as likely that by a combination of slacked ashes and plaster that the effects would be very powerful. I ordered my servants to be careful to preserve all the ashes made during the winter, which being exposed to the rains during winter, was sufficiently slack by spring. I ordered the proportion of two bushels of

ashes to one bushel of plaster, mixed well together, which was carried out in the field, and my little negro boys, each with his bag of the mixture following the droppers, and with a large oyster shell emptied the contents on the seed as it was dropped and covered over; this and this alone, said he, is the cause of my corn being so much superior to any you have seen." Recollecting this experiment, I was induced to try it, as did several of my friends in Baltimore and Frederick counties, to whom I had communicated it; all of whom have received equal benefit from the experiment. Mr. Robert Carnan stated to me that he had tried it on the poor knowles, in his corn field, and found his corn on them equal to his best ground.

When I am told why or how plaster acts, I will feel myself called upon to discover why it acts best when combined with ashes; until then I may content myself with stating what has happened in my practice, that others may benefit by a knowledge of the fact. G. W.

REPORT

Of the Committee on Agriculture, on the petition of Anthony Dey and James Macdonald.

MARCH 12, 1822.

Read, and the resolution therein contained concurred in by the house.

The Committee on Agriculture, to which was referred the petition of Anthony Dey and James Macdonald,

REPORT.

The petition alleges, that the said Macdonald, at the expense of the said Dey, has invented and constructed a new and useful machine for breaking and cleaning of hemp and flax, in an unwretted state, and that the said Dey has discovered the means by which hemp and flax, after being cleaned in an unwretted state in their machine, may be bleached by a process hitherto unknown; that they believe their method of dressing hemp and flax is of very great importance to the agricultural interest of the country, and, therefore, ask an extension of the exclusive right to make, construct, use, and vend to others to be used, the said invention and discovery.

From the evidence adduced by the petitioners, it appears, that they have invented a machine for breaking and cleaning hemp and flax, in an unwretted state, which is different in its principles and construction from any machine that ever has been used for that purpose, and that the said Dey has also discovered a process, never before used, for bleaching hemp and flax after it has been dressed in an unwretted state. And, also, it appears by the certificates of respectable gentlemen, who have witnessed the operation of the machine, that it will, by the power of one horse, with the assistance of one man and three boys, separate the integument and wood from the fibrous part of the hemp and flax plants, and clean the same, at the rate of one pound in a fraction of time, even a minute, fit for bleaching.

The petitioners further assure us, from the operation of one machine by horse power, with the attendance of one man and three boys, from 1,600 to 2,000 lbs. of unwretted hemp, or flax

may be cleansed in a day, yielding from 400 to 500 lbs. after it is bleached; and that, by the employment of another machine, which can be moved by the same horse, with the addition of one man and one boy more, from 800 to 1,000 lbs. may be cleaned at an expense not exceeding five dollars. And the committee are informed by Mr. Dey that one man can bleach 350 lbs. of hemp or flax, after it has been cleaned by their machine, in a day, at an expense of one dollar and seventy-five cents for the article which he uses in the process.

From these calculations, it appears that any quantity of unwretted hemp or flax, taken from the field, where it is raised, may be broke, cleaned, and bleached, at a rate of less than two cents per pound, delivered in a bleached state; and, allowing one cent per pound for the plant as it comes from the field, the whole cost, (except for the wear of the machine,) in growing this valuable plant, and breaking, cleaning, and bleaching it, will be less than six cents per lb. The committee are not informed what the cost of hatchelling or combing it, (which is done after it is bleached,) and preparing it for the manufacturer, would be, but presume it will not exceed two cents per pound. If the information the committee have received and their calculations are correct, either hemp or flax may be raised, dressed, and prepared for the best manufacture, at an expense of eight cents, and not exceeding, in any case, ten cents per pound.

By the experiments of the petitioners, and others, it is found that flax, dressed and hatchelled in the ordinary way, after it has been dewretted, yields nine pounds from one hundred pounds of the plant which has been wretted, being sixteen pounds less than is produced from one hundred pounds of unwretted flax, cleaned and bleached by the method which the petitioners have discovered. But no experiments have yet been made to determine the difference in the weight of the plant, before and after it is wretted; therefore, it cannot now be ascertained how much will be saved, in quantity, by this method of breaking and cleaning it before it is wretted. It cannot, however, be doubted, that the common process of wretting flax, especially by dew, destroys or injures many of its fibres, and, of course, the quality, as well as the quantity, must be, in some degree, diminished.

The committee have examined the machine, and have seen it operate, and believe it will prove one of the most important and valuable discoveries. The committee have, also, examined the hemp and flax which has been bleached in this new method and hatchelled, and find that the colored matter and harshness of the fibres are removed, and that the flax is rendered very white, and as soft and fine as silk.—This method of bleaching hemp and flax, it is believed, will be of great value to the grower and manufacturer of these plants.

Considering hemp and flax among the most valuable plants which can be cultivated in this country, and believing there is an abundance of soil in every state in the Union which is well adapted to their culture and growth, the committee are highly pleased with the inven-

tion and discovery of the petitioners. If hemp and flax can be raised in this country as easily and as cheap as in any other, and these inventions should prove as valuable as the committee believe they may, the cultivation of these plants will engage the attention of a large portion of the agriculturists, and become exceedingly important to the United States. It may be seen by the statement of the Secretary of the Treasury, of the quantity and value of merchandise imported, that, during the year ending on the 30th of September, 1821, 86,192 cwt. of hemp, valued at \$510,489 (being about \$120 per ton), hempen goods, of the value of \$226,174; duck and sheeting, of the value of \$894,276; cordage, of the value of 107,867 dollars; and linens, bleached and unbleached, of the value of \$2,564,159, were imported into this country, amounting to \$1,302,963, and that the whole value of the exports of domestic and foreign produce of the same kind, amounted only to \$822,976, leaving the value of \$3,479,187 in the merchandise produced from the hemp and flax plants consumed in this country.

As the petitioners desire an extension of time, and further protection than is secured under the patent law in its present form, and as it is the peculiar province of the Committee on the Judiciary to report any revision or amendment of that law which may be deemed necessary, your committee recommend the adoption of the following resolution:

Resolved, That the Committee on Agriculture be discharged from the further consideration of the petition of Anthony Dey and James Macdonald, and that it be referred to the Committee on the Judiciary.

Paper laid before the members of the Farmer's Society of Barnwell District, S. C. and by their request published in the American Farmer.

Remarks on the Rot in Cotton, and on the selection of seed roots for a crop of sweet potatoes.

GENTLEMEN,

Communications from our members, being one great source of improvement created by the formation of agricultural associations, I submit a few observations made the last season, with the more confidence, under the impression, that it will induce many of you to favor our society with the result of your experiments. Believing, that the rot in our short cotton, was connected with the seed; I was induced to plant a piece of new and rich land, with seed soaked in the following manner, and with strong solutions, viz. Green vitriol, blue vitriol, sulphur, salt and water, strong hickory ashes, lime, boiling water, some seed selected from plants which had no rot; and also some rows planted with common seed, to test the experiment. After frost, upon a careful examination, I could not perceive any difference as to the degree of rot. Every row was much injured.—In addition to this I planted in fifteen acres of third years land seed selected after the first frost, from plants which had escaped the rot: this, as well as

two acres, planted with seed soaked in salt pork pickle, and the same quantity of land planted with seed soaked in hot water, was as much affected with rot, as the other parts of the field planted with common seed, pickled in before frost. It may not be improper to add, that, the rot was much worse with us the last season than ever; and that on an old field escaped, while on new land (half a mile from any other cotton) it was seriously injured—both planted with the seed of the same picking. This should induce us to be careful not to attribute apparent effects, to causes not fully tested by repeated experience. The opinion, that the rot is occasioned by the perforation of the *pod* bryan insect, appears to be revived; and although I cannot substitute any satisfactory opinion, there appear still to be so many well attested facts in opposition to the idea, that I cannot agree with those who advocate that solution of the case. An old field, *adjoining* new land two years since with me, escaped while the new ground was greatly injured by it. Our active, zealous, and successful member, W. R. Bull, carefully collected, and then burned all the stalks of cotton. This field was then well ploughed in cold weather, and was as much injured by the rot as those fields where the stalks were listed in. Mr. Speel, jun. carried with him, a few quarts of cotton seed, of a crop nearly ruined with rot, from our district, to the Alabama. The cotton from this seed escaped, while the cotton upon the same plantation was much injured—and surely, we cannot suppose the discriminating power of the bug to be so great, as to distinguish the flavor of one kind of green seed cotton, from another. From some facts which have occurred in our district, as well as some communications to the Claremont agricultural society, it would seem well worth the attention of every planter, who has old seed to plant a part of his crop with seed of this description.

I repeated last season an experiment with the sweet potatoe. Two rows were planted with large seed, then two more with similar seed cut into two pieces—two more rows were planted with small seed; and then, two with similar seed cut into two pieces. The result was as follows: The large roots uncut were less prospective than similar Roots cut; the small roots uncut were most productive, and the small seed cut, were least productive. The large roots cut and the small roots not cut, were much more productive than the other half of the ground planted with the large roots not cut and the small roots cut.

JNO. S. BELLINGER.

January 22d, 1825.

EFFECTS OF VARIOUS ARTICLES USED IN FATTENING SWINE, &c.

From the Dublin Evening Post, Sept. 1821.

Skimmed milk and pea, oat, or barley meal, rank first in point of excellence, with respect to the quality of the flock—milk-fed pork being superior to any other description, not only in delicacy of flavor, but in substance and weight,

now weighing so heavy in proportion as the milk-fed animal. Hence bacon of the dairy counties is superior. Milk will fatten pigs entirely, without the aid of any other food, in practice sometimes pursued in the dairies. Corn-fed pork is next in value—peas, oats and barley being the best adapted grain. Bean fed pork is hard, ill flavored, and indigestible; potatoe fed, it is loose, insipid, weighs light, and wastes much in cookery. To mix potatoes in the food of fattening pigs, is deceptive, deteriorating the pork in exact proportion. Hence the Irish pork and bacon are generally inferior to the English, and the market price so in proportion. The inferiority was, some years since, stated at three ounces per lb. and upwards, by an eminent dealer in Irish provisions. Clover fed pork is yellow, unsubstantial, and ill-tasted; fattened on acorns, it is hard, light and unwholesome; on oil cake, seeds or chandler's graves, it becomes loose, greasy, and little better than carian; on butcher's offal, luscious, rank, and full of gravey, but of a strong and disgusting scent. Compared with the general consumption of pork, the real dairy fed meat bears a small proportion, and the sale of it in the Metropolis, is in very few hands, always commanding a superior price. In some parts of France they skin their pigs intended for fresh meat.

CATALOGUE

Of Fruit and Forest Trees, Flowering Shrubs and Plants; for sale by PRINCE & MILLS, at Flushing Landing, on Long Island, near New York.

CHERRIES.—50 Cents.

Early May, Early Richmond, ripe in May. May duke, M y and June. Black tartarian, Black heart, White heart, White tartarian, June. Oxheart, Bleeding heart, Lukeward, Lundie Gean, Transparent Gean, Ronald's Large black heart, Yellow Spanish, Grassion, Black caroon, Late Spanish, China heart, Late duke, Mazard, or honey cherry, July. Carnation, best for preserving Herefordshire black, Red begareau, White Begareau, Elk horn, July and August.

Kentish, or omnou red. } for tarts, ripe in July and August.
Black morella. }
Large English Morella }
Plumstone morella }

Cornelian with long scarlet fruit, All-saints, American heart, September.

Maleb or perfumed }
Weeping }
English double blossom } ornamental.
French do. with very large flowers }

PLUMS.—50 cents.

[This fruit is the most difficult to propagate of any cultivated in the nursery, being subject to many distempers and injuries to which other fruits are not liable; and, in budding and grafting, seldom more than one eighth succeeding, it is with difficulty that a tolerable assortment of them can be kept up by every cultivator.]

Jean hatve, Chic saw ripe in July. * Early scarlet, or cherry plum, Early damask, or Morocco, Poncecoteaux, Azure batave, * Early sweet damson Aug. st. Poterlingham Blue pedigrion, True prune, Red imperial, † Yellow egg, white magnum bonum, Marquis of Burgundy, Little queen Claudia, * Green-gage, * Blue-gage, Red gage, * White gage, Holland, † Large Orleans, purple egg, * † Smith's Orleans, Seckinua. French copp r plum, * Drap d'oeur Cheston, Meugnon, ripe in September. * Apricot plum, St. Catherine, † seaur, † d'oeur, American pigny plum, * Imperatrice, late red imperial, October. Cluster, White

damson, October and November. Winter damson, first, December. Bolmer's celebrated Washington, † Superior Green gage, very fine, September. Golden Drop, Early Coral, August. These two last are native fruit of great beauty and good bearers.

PEARS 31½ to 37½ Cents.

[The variety of pears are so extensive, that the European and American sorts together would form a list of several hundred. A succession of the best kinds, or what the French term the *circle of pears* which will afford some of the best sorts for the table and culinary purposes throughout the year, may be selected from the following which are of the most approved kinds. An additional number have been received from Europe, a list of which will be published in the next catalogue. Those marked M are melting pears—those marked B are best for baking &c.]

Primitive, Little musk, or supreme, Early sugar, Green chissel, M Ited muscadelle, or twice bearing, M Sugarloaf, July, or harvest pear, ripe in July, Jargonella, M Skinsless, early ruselet, M Chuisse madame, Avator, or August muscat, M Pondant d'ete Summer melting pear, Windsor, M Summer Russelet, Late green chissel, M Gros Blangette, M Muscat robin Bell pear, Musk flavoured Summer bon cretien, M Summer bergamot, M ripe in August. Vergalieu, Doyenne, or St. Michael, M Salviati, Brown Beurre, M Itoyal summer Perfumed pear Mouille boue or mouth water, Clotote de su. s. striped pear, Rousset de Rhem, M Bloody pear, Golden Beurre, M Cassol-tta, Lowree's bergamot, M Autunin bergamot, M Brocau's bergamot, M Gansel's bergamot, M Grey Monsieur Jean, September. Poir de prince, or the prince's pear Melting pear of Brest, fondant de Brest, M Woolly, or Sage leaved, Seckle, M Doyenne gris, late vergalieu, M Autumn bon cretien, Vime, Autumn bounty, M October. Crasane, M Vergoleuse, or winter vergalieu, M November and December. Winter thorne, M Colmar, M Swans egg, M Armadot, M St. Austen, L'echassair, M Louisbon, M Chaumontelle, winter beurre, M ripe in December and January. St. Germaine. This is a fine melting pear, of excellent flavour it is in eating order from November till April. Brown St. Germaine, M do. Winter russet, M Catillac B. Easter bergamot, terling pear, B Holland, or winter bergamot, M December and January. Itoyal winter, M German muscat, M Poir d'auch, M St. Martial, M Winter bon cretien, B Uvedale's St. Germaine, B Double flowering, B Frankenal, or golden end of winter, January to March. Spanish bon cretien, Treasure pear, January to June. Sarasin, November to July. Orange red, July. Aldinra, Besberry, Barland, for Perry, said to afford a liquor equal to champagne.

A few select kinds are propagated as Dwarfs, on Quince stocks, at 50 cents.

APPLES.—31½ to 37½ Cents.

Large early, or harvest apple, the earliest of all apples. fit for tarts in June, and when ripe is an excellent table fruit, Junating, ripe in July. Large early bow, English codlin, August. Large red and green sweetening weighs a pound, Large white sweetening, ited caville, Summer pearmaine, ripe in September. Aromatic Russet, Large fall pippin, or pipplin, weighs a pound, Famagusta from Cyprus, Late bow, Autumn pearmaine, October. French red reinette, Loon's pearmaine, Quince apple, Spruzize, yellow without and red to the core within, Siberian crab, with small crimson and yellow fruit, English nonpareil, American nonpareil, doctor apple, † Esopus Spitzzenburgh, Flushing, Newtown. Seckinua, White calville, Royal russet, Lady apple, pomme d'appte, November to March. Ladies finger November to June. Rose apple Ribstone pippin, English golden pippin, Pommeegree, Craam, Golden reinette, November to March. Winter sweet pearmaine, Ruckman's, Federal, Golden, Royal, Large Rhode-Island greenling, Red winter sweetening, January. Priestly, Double flowering Chinese apple, one of the most beautiful of flowering trees, Yellow Bell flower, Black apple, Swaar, Vandevere, Monstrous pippin, or New York gliamunda. This apple has weighed 27 ounces, Dickkilt, Newark king apple, Wine apple, ripe in March. Large green Newtown pippin of best flavour, Merrygold, Camfield, for cider, Wine sap,

fine for table or cider, November to June. B. B. B. crab for cider or table, October. Burlington greenling, November to March. Paradise apple, July. Green ever, lasting, Red ever, sting, Winter russeting, Boston or Novascotia russeting, these are excellent keeping apples, the fruit having been kept perfectly sound for more than a year.

Herefordshire red streak, Hughe's red Virginia crab Red sweeting, Harrison's celebrated Newark cider apple for cider.

PEACHES.—31½ to 37½ Cents.

[The variety of Peaches are so extensive that the number might easily be increased to two hundred; but as it is generally preferred to have a moderate number of the best sorts to ripen in succession, the following have been selected on account of their size, flavour, or time of ripening, from among the best sorts imported from Europe, as well as those which have originated in America. Those marked * are esteemed for their flavour—those marked † are remarkable for their size—those marked C Clingstones.]

* White nutmeg, early avant, Scarlet nutmeg, * Yellow nutmeg ripe in July, * Green nutmeg, early an, Earliest red clingstone, † Red rare ripe B. Prince's red rare ripe, * White rare ripe August, * Large early, or Albege, or yellow rare ripe, Early Newington, C Petit mignon, Early purple, Royal George, Royal Charlotte, * Royal K-nsington, * † Old mixon * † Malta * Gross mignon * Sweet water, Bellecheuvre, * Old Newington, C Montaubon, Noblesse, * † Fine apple, C Swalk, White magdalen, * † Red cheek malagatune White malagatune, Bellegrade, or Galand, * † Kennedy's Carolina, early lemon, C † Orange peach, White blossom, Western Newington C † Green Catharine, Teton de Venus, † President, * Orange clingstone, † Congress clingstone, (very fine) * Late purple smooth skin, like a nectarine, Vanguard, ripe in September. Large white clingstone † Spanish clingstone, † Late admirable, C Late catharine, Blood peach, * Double blossom, or rare peach, Red Magdalen * Lemon clingstone (the largest of peaches) † Barcelona yellow clingstone, * † Heath clingstone, most excellent, but the tree must be kept in cultivated ground, and the fruit ripened in the house; they will keep till November, and are by many thought superior to all other peaches, † Large red October clingstone, Mammoth clingstone, Ni-vette, C † Blood clingstone, claret clingstone, October white clingstone, October yellow clingstone, October, † Pomponne monstrons parvie a beautiful late red clingstone, Gough's late red clingstone, White winter, C October and November Green winter, C November and December. Algiers yellow winter clingstone.

NECTARINES.—31½ to 37½ Cents.

Early yellow, ripe in August. Fairchild's early, C Elrodge, Argyle, C Golden; C Newington, C Aromatic, Ited Roman, C Vermash, C Peterborough, C Green, C September. White, October.

ALMONDS.—37½ Cents.

Hard shell, Thin shell, or ladies almond, Soft-shell, Jordan almond, Double flowering, or dwarf almond.

APRICOTS.—31½ to 37½ Cents.

Early masculine Large early, ripe in July Brussels, Blanche, † Gold Blotched, Breda, do Algiers, Orange, Grover's breda, Peach apricot Moor park, Black, August.

ELDERBERRIES.—37½ Cents.

Large black English, White or Italian, Black American; Chinese paper whiteberry.

QUINCES.—37½ Cents.

Large orange ripe in September and October Peat in October, Portugal (see Dwarf.) Winter do, in January to March.

GRAPE VINES 37½ Cents.

French chocolate-coloured oval grape a great bearer, Red chasalas, White chasalas, Black sweet water, White do, Black Madeira, White Frontinac, Bland's Virg nia native grape, Early white muscadine, or summer white sweet water, fine flavoured, and very great bearer Alexander's grape, hardy, and great bearer, ripe in September.

FIGS.—50 CENTS.

Brown (the best bearer), Large white, GOOSEBERRIES.—25 CENTS.

[Near two hundred sorts of this fruit have been received from England, from which the following have been selected on account of their large size, time of ripening, or flavour; but it will be in vain to plant the finest gooseberries, if attention is not paid to them after they are set out. There is no fruit tree that requires so rich a soil; they should have rotten manure dug in around them every autumn, and the ground kept mellow and cultivated, and the bushes trimmed, and tops thinned out moderately every year. If planted in low wet, or shady situations, or in too confined a garden, the fruit is apt to become mouldy, which immediately stops the growth.]

Mammoth green gooseberry, producing the largest fruit of the kind known in America 50 cents.

Red, Alcock's king, Rumbullion, Duke of York, Warrington red, Ironmanger, Shaw's Billy Dean, Red Bulfinch, Large amber, Smooth claret.

Green, Early green hairy, Green Gascoign, Green Walnut, Satisfaction, Green Dorrington, Green chisel, Green Oak, Duke of Bedford, Ribbed green.

Yellow, Golden drop, Rocket's yellow, Long yellow, Golden seedling, Royal yellow, Rough yellow, Prince of Orange, Hutton's goldfinch.

White, White elephant, Snowball Highland white, White heart, Callebanc's white, White crystal.

CURRANTS. 25 CENTS

Large Dutch red, large white do, Large Champagne, pale red, ripe January to March, American black, 1 1/2 cents, Large black English, August and September, Lewis's fragrant currant, discovered by Lewis and Clarke in passing through Louisiana to the Pacific Ocean, 50 cents.

RASPBERRIES,

English red, best for raspberry brandy, 8 cents, English white, 8 cents, Brentford red 1 1/2 cents, do white 1 1/2 cents, English cane, or twice bearing, 8 cents, July and October, Large white Antwerp, 25 cents, July and August, Large red ditto, 25 cents do, American black, 8 cents July, ditto white 1 1/2 cents do, Canada, or purple rose flowering, 8 cents, August Barnett, a new English sort, with high flavoured fruit, 25 cents.

STRAWBERRIES.

Morrisania, early scarlet, 25 cents per doz ripe in May.

HONEY SUCKLES.—25 CENTS.

Alazea, or Standing American honey suckle with pink flowers, ditto late flowering white fragrant, English early flowering, English woodbine honey suckle, White monthly, very fragrant, Scarlet trumpet monthly, variegated-leaved honey suckle, (see Hawthorns.)

DWARFS.

Dwarf apple and pears, of several varieties, fifty cents each,

ASPARAGUS.

The best roots, from two to three years old, 1 dollar per hundred,

SCIONS FOR INGRAFTING.

Scions of the various fruit trees, packed in the most complete manner with earth and moss, 50 cents per dozen.

FOREST TREES OF LARGE GROWTH, ORNAMENTAL FOR THEIR FOLIAGE AND FLOWERS.

European white flowering horse chestnut, 50 cents, Spanish chestnut, with very large fine eatable fruit 30 cents, American ditto, 25 cents, Weeping willow, 3 1/2 cents, Upright green ditto, 3 1/2 cents, Yellow willow, 3 1/2 cents, Tulip tree, one of the most ornamental trees, 30 cents, Fox's white oak, raised from the seeds of the two trees under which George Fox, the original Quaker, preached, which trees are still growing at this place, 3 1/2 cents, American oaks, twenty varieties, 25 cents, Liquidambar, or maple-leaved sweet gum, 3 1/2 cents, Lombardy poplar, 25 cents, Athenian ditto, 25 cents, Balsam ditto, or broad-leaved Tacamahac, 3 1/2 cents, Carolina ditto, or cotton tree, 3 1/2 cents, Aspen poplar, 3 1/2 cents, Canada ditto, 3 1/2 cents, Honey locust, or three thorned acacia, 3 1/2 cents, Common locust, 25 cents, Western plane, Sycamore or Button-

wood, 25 cents, English linden, or Lime tree, a much admired European ornamental tree, very hardy fifty cents, American ditto, or Basswood, 50 cents, American bird cherry, 50 cents, European larch, or deciduous larch, very ornamental, 50 cents, Maclura nut, or English walnut, 50 cents, Round black walnut, twenty-five cents, Long ditto, 25 cents, Illinois, or Pecan nut, 50 cents, Hickory nuts of varieties, 25 cents, Sassafras, 25 cents, Weeping birch, 3 1/2 cents, Canada ditto, 25 cents, Black American ditto, 25 cents, White, or Paper ditto, 3 1/2 cents, English elm, very ornamental, 50 cents, Scotch elm, ditto, 50 cents, Pride of India, or head tree, with purple flowers and beautiful foliage, 50 cents, Catalpa, much admired for its showy flowers and large foliage, 3 1/2 cents, American cypress, a tree of fine appearance, and one of the largest growth, 50 cents, European white ash, a tree of very stately and rapid growth, 3 1/2 cents, Sugar maple, 3 1/2 cents, Scarlet flowering ditto, with clusters of showy flowers, in the month of March, 25 cents, Norway maple, 50 cents, Kentucky coccifer, or bonduc, a tree of singular growth 50 cents.

FOREST TREES OF MIDDLING GROWTH, ORNAMENTAL FOR THEIR FOLIAGE AND FLOWERS.

European mountain ash, or Roan tree, one of the most admired ornamental trees, on account of the beauty of its foliage, and its clusters of scarlet fruit, which remain for many months, 50 cents, American ditto, 50 cents, European autumn flowering alder, 3 1/2 cents, Magnolia tripetala, or umbrella tree, with very large white flowers, 50 cents, Magnolia glauca, with very fragrant flowers, 50 cents, Magnolia acuminata, or cucumber tree, of elegant growth, and blue flowers, 50 cents, Magnolia macrophylla, with very large leaves and the most splendid flowers, white, with purple centre, 2 dollars, Magnolia aciculata, or ear leaved magnolia, 2 dollars, magnolia cordata, yellow flowering, 3 dollars, Scarlet flowering horse chestnut, 50 cents, Yellow do, 5 cents, Willow leaved oak, 50 cents, Black Canada willow, of singular appearance, 3 1/2 cents, English basket do, 3 1/2 cents, Coccygia, Venetian Sunnack, or purple fringe tree. This beautiful tree is covered during the summer months with tufts of russet coloured down, which forms the most singular ornament of the garden, 50 cents, American larch, or leucodermis fir, a much admired tree, 50 cents and many others.

GARDENS for the within named Trees, Shrubs, and Plants left at Messrs. HULL & BOWNE'S No. 146 Pearl-street, New-York, or at the nursery, will be immediately attended to; and, if wanted for Europe, or any part of America, they will be packed in the most perfect manner, and delivered in New-York by water, free of freight.

THE FARMER.

BALTIMORE, FRIDAY, MARCH 22, 1822.

In concluding the third year of our Editorial labours in the cause of AMERICAN AGRICULTURE, we shall be very brief in addressing our Subscribers, as we hold it to be decorous in a Journal which is the property of its patrons, to say as little as possible, about self—we hope we have done the country "some service," and an augmentation of patronage, and of correspondents of the highest order of intelligence, gives us reason to believe that we can yet do more in the ensuing year.—The Paper will retain its present size and shape, and will undergo some improvement, so as to give it, when it comes to be bound at the end of the year, more of the book form. We shall moreover, for more ready reference sake, besides the usual full index at the end of the year, give each subscriber an Index half yearly. And now we have only to entreat our subscribers to be punctual in the remittance of what is due. The loss of a great number of copies by fire, and the heavy expense of republishing a new Edition of 1500 copies now in press, urges us to make this earnest appeal, not only to their sense of justice, but to their friendly dispositions in behalf of the Editor and his labours. As he deceived in flattering himself that his appeal made in honesty and candour, will be met with the attention it deserves?

DEFERRED ARTICLES.

As many valuable articles have been communicated which we have yet found it impossible to insert, accompanied with letters, which unavoidably remain unanswered, we deem it proper in this number, to give a list of such of these articles as we find at hand. There are doubtless, others which do not at this moment present themselves to our view or recollection. Before this time many of our valuable correspondents will have learned to feel satisfied, that though their communications are often delayed for a long time, it does not follow that they are forgotten or will be neglected.

List of articles deferred, and which will appear as soon as occasion may offer in the ensuing, fourth volume:

REMARKS ON THE PREPARATION OF MORTAR, BY D. OLINSTRAD, Professor of Chemistry and Mineralogy, in the University of N. Carolina.

SEVERAL EXCELLENT ESSAYS AND MODERN TREATISES ON THE NATURAL HISTORY AND MANAGEMENT OF BEES, WITH INSTRUCTIONS FOR CONSTRUCTING THE APIARY HIVES, &c.

CONSTRUCTION OF COW HOUSE AND MANAGEMENT OF FARM YARD.

ON FLAX, several.

ISAAC BRIGGS and JOSEPH DELAPLAINE, ON THE IMPORTANCE OF DEEP TILTH; DESCRIPTION OF AN IMPLEMENT INVENTED TO PROMOTE THAT OBJECT, WITH ILLUSTRATIVE DRAWINGS, &c.

POTOMAC ON THE BEST TIME AND MANNER OF GATHERING CORN, &c. &c. in reply to F.

INTERNAL Improvements in South Carolina.

FAMILY Spinner—Straw Cutter—Wool-Heap—Wool—Hydraulic Pump—Italy and Mediterranean Agriculture—Saint Foin, Clover and other Grasses—Rail Ways—Culture of Carrots—Fruit Trees—Delaware and Chesapeake Canal—Wooden Wicks—Culpepper County Farming—Improvement of the Susquehanna Navigation—Potomac ditto, &c. &c.

PRICES CURRENT.

Flour from the waggon, superfine, \$6 to 6 1/2—Wheat flour \$6 per bu.—Wheat, white, 133 to 135 cents—Red, 130 to 132—Corn, white, 70 to 71—yellow, 64 to 65—Rye, 65—Barley, 60—Oats 35 to 45—Beans, 150 cents per bushel, wholesale—Green Seeds, Clover, \$8—Timothy, \$5—Orchard, 3 1/2—Herds, 3 per bushel, at retail—Salt, coarse, 54 to 65 cents—Liverpool ground, 56—do. fine, 40 to 44 per bushel—Plaster of Paris, ground, 57 per ton or 125 cents per bu.—Mest Beef, \$11—do pork, 13—Herrings, 24 to 25—Shad, 35 to 6 per bu.—Codfish, 3 to 3 1/2 cents—Hams, 11—Cheese, 11—Butter, 20 to 31 1/2 per lb.—Eggs, 16 to 12 cents per doz.—Wool 20 to 36—Cotton, Georgia Upland, 15 to 17 cents per lb.—no Louisiana or Alabama in market—Tar, 175 cents—Turpentine, 175 to 200—Rosin, 150 per bu.—Spirits of turpentine, 37 to 40 cents—Varnish, 30—Linseed Oil, 75 to 80 per gallon—Tobacco, old crop Maryland, no yellow, or fine red in market—good Patuxent red 6 to \$3—common 4 to 5—second 1 1/2 to 3 per 100 lb. in demand—Virginia, a few huds. from Richmond were sold this week at \$5—and some from Kentucky at \$5 per 100 lb.

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